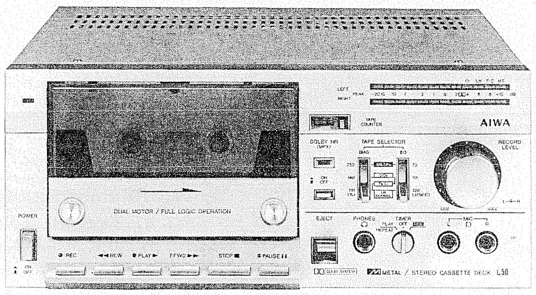
STEREO CASSETTE DECK

MODEL NO. SD-L50H,U

AIWA®

(SERVICE MANUAL)

Code No. 19-300-000-63



DATE OF ISSUE 5/1980

SPECIFICATIONS

Semiconductors:	9 IC's, 63 transistors, 39 diodes, 27 LED's
Power supply:	H model AC 120V/220V/240V switchable 50/60 Hz U model AC 120V 60 Hz
Power consumption:	18W
Dimensions:	250(W) x 105(H) x 260(D) mm [9-7/8"(W) x 5-7/8"(H) x 10-1/4"(D)]
Weight:	4.5 kg (9.9 lbs)
Track type:	4 tracks 2 channel
Tape speed:	4.76 cm/s (1-7/8 ips) ± 1.5%
Wow and flutter:	Less than 0.04% (WRMS)
Automatic stop system:	Full auto stop
Automatic shut-off action time:	3 ± 1 s.
Pinch roller pressure:	350 ± 30 g
Take-up torque:	50 ± 10 g-cm
FF & rewind torque:	155 ± 65 g-cm
FF & rewind time:	90 s. (C-60)
Play back output: (TTA-161)	0.58 ± 0.05V (LINE)
Play back noise:	Less than 2.0/1.5 mV (CrO$_2$, DOLBY NR OFF/ON) Less than 2.5/1.5 mV (LH DOLBY NR OFF/ON)
Rec./PB output: (TTA-119G)	0 VU ± 1.5 dB (LINE)
Rec./Pb distortion:	Less than 2.0% (CrO$_2$) Less than 1.1% (METAL, Fe-Cr) Less than 1.2% (LH)
Rec./Pb SN ratio: (1 kHz, Unweighted)	More than 45/47dB (METAL, DOLBY NR OFF/ON) More than 45/47 dB (CrO$_2$, DOLBY NR OFF/ON) More than 42/43 dB (LH, DOLBY NR OFF/ON)

Channel separation: (1 kHz, 0 VU)	More than 35 dB	
Cross talk: (1 kHz, 0 VU)	More than 65 dB	
Erasing ratio: (400 Hz, 0 VU, +10 dB)	More than 60 dB	
Bias frequency:	85 kHz	
Frequency response:	METAL	25 ~ 17,000 Hz
	CrO$_2$	25 ~ 17,000 Hz
	LH	25 ~ 15,000 Hz
Motor:	DC servo motor (capstan) DC motor (reel)	
Inputs:	MIC max. sensitivity 0.3 mV (200 Ω ~ 10 kΩ suitable)	
	LINE IN	max. sensitivity 50 mV (Optimum load impedance more than 50 kΩ)
Outputs:	LINE OUT	Standard level 0.41 V (0 VU) (Optimum load impedance more than 50 kΩ)
	PHONES	8Ω

- Specifications and external appearance are subject to change without due to product improvement.
- Dolby Noise Reduction System is licensed from Dolby Laboratories.
- The name "Dolby" and ◫ symbol are trademarks of Dolby Laboratories.

DISASSEMBLY INSTRUCTIONS

1. To Remove Cassette Plate

1) Remove the 2 screws. (See figure 1)

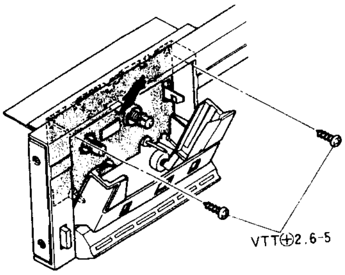


Fig. 1

2. To Remove Front Panel

1) Remove the 3 knobs.
2) Remove the 3 screws. (See figure 2)

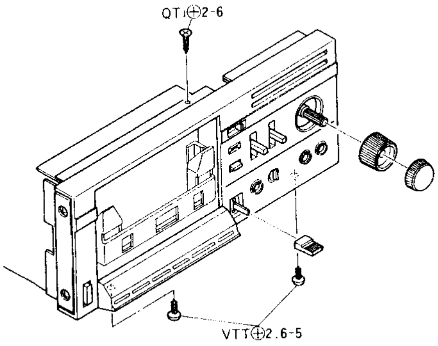


Fig. 2

3. To Remove Main Motor and Sub Motor

1) Put the main belt onto the belt rest.
Twist clockwise and remove the main motor.
(See figure 3)

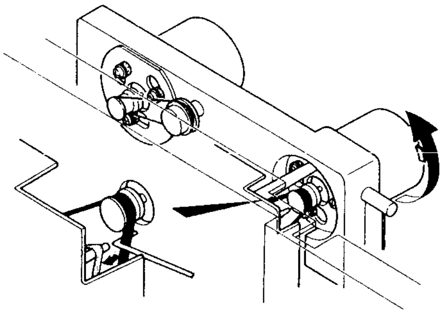


Fig. 3

2) Take the rubber belt (FR, B) out of the sub-motor.
3) Remove two screws on the plunger board.
Twist clockwise and remove the sub-motor.
(See figure 4)

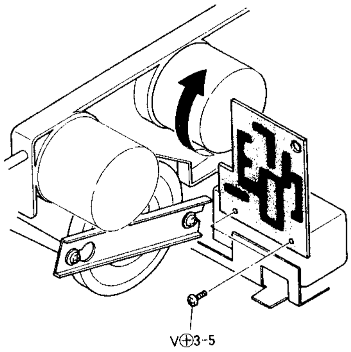


Fig. 4

4. To Remove Sub Chassis

1) Take off the rod for the power switch.
Remove two screws for the logic board supporters.
(See figure 5)

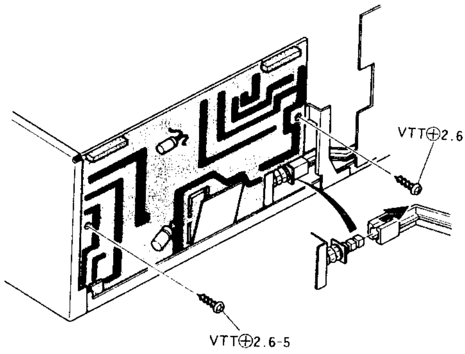


Fig. 5

2) Remove the 5 screws. (See figure 6)

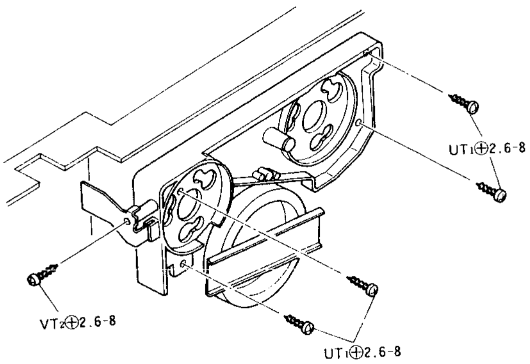
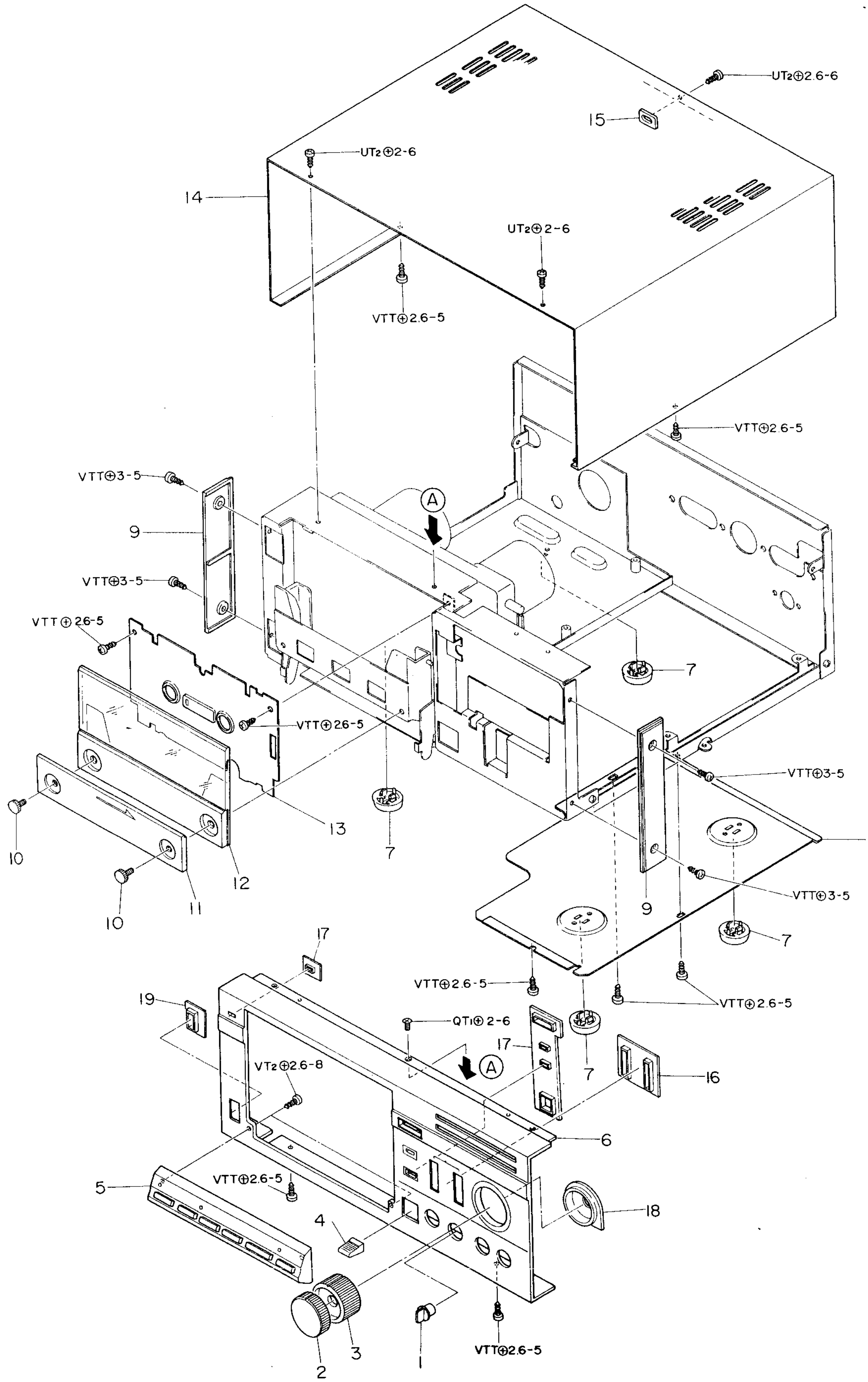


Fig. 6

☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ MEMO ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆

EXPLODED VIEW–1


UT2⊕2.6-6
15
UT2⊕2-6
14
UT2⊕2-6
VTT⊕2.6-5
VTT⊕2.6-5
VTT⊕3-5
9
VTT⊕3-5
A
VTT⊕2.6-5
VTT⊕2.6-5
7
VTT⊕3-5
8
13
7
10
11
12
10
9
VTT⊕3-5
7
17
19
VTT⊕2.6-5
VTT⊕2.6-5
QT1⊕2-6
17
A
7
16
VT2⊕2.6-8
6
5
VTT⊕2.6-5
18
4
3
2
1
VTT⊕2.6-5

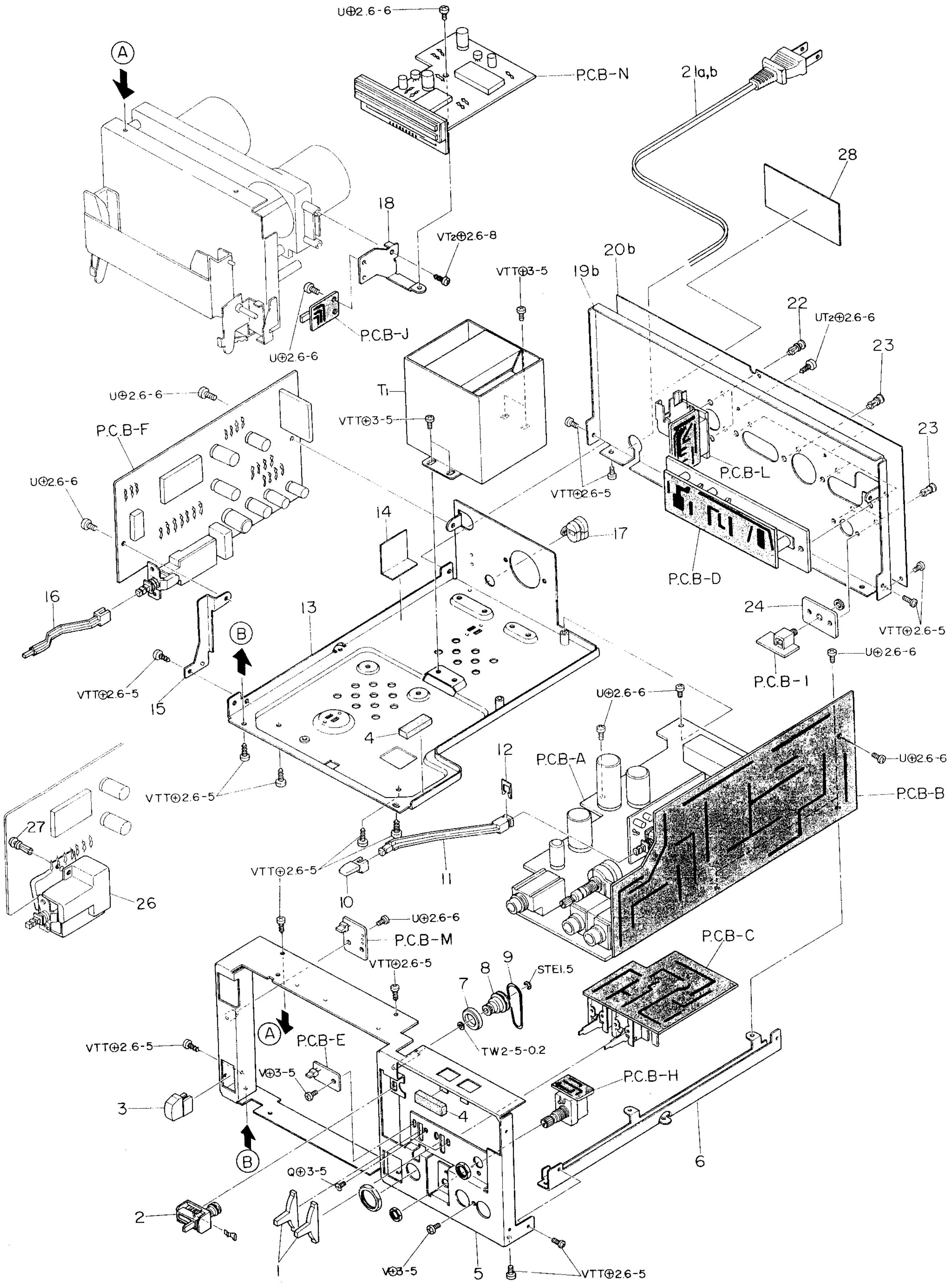
PARTS LIST

MECHANICAL PARTS

- * mark in this part list shows exclusive part (which is used) for only Model No. SD-L50.

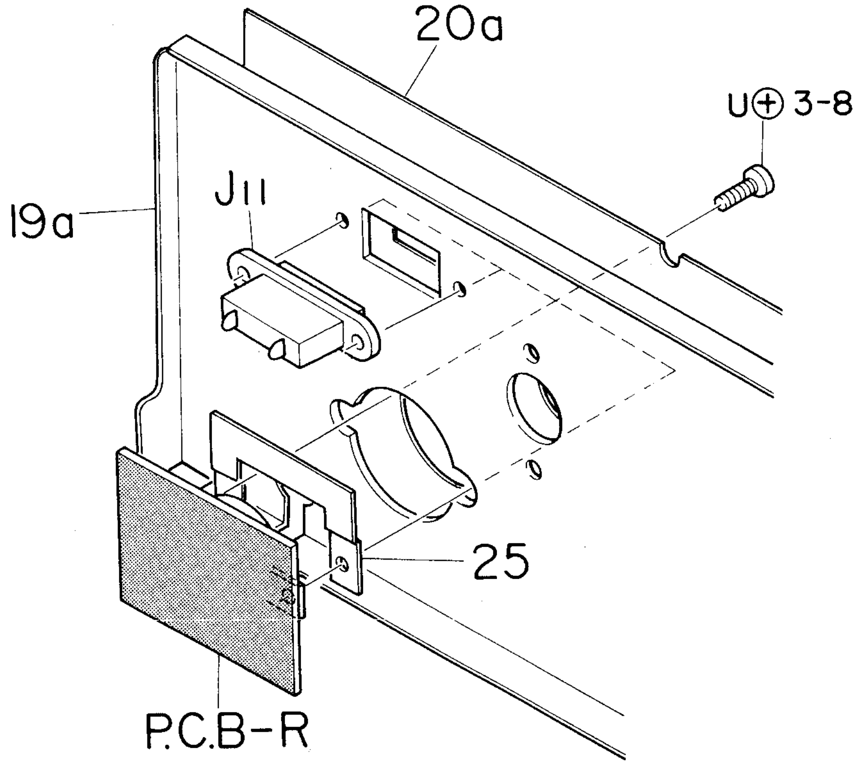
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1-1	82-157-016-01		Knob, Timer	*	1	
1-2	82-157-006-01		Knob A, Volume	*	1	
1-3	82-157-007-01		Knob B, Volume	*	1	
1-4	82-157-015-01		Knob, Eject key	*	1	
1-5	82-157-645-01		Push-key ass'y	*	1	
1-6	82-157-018-01		Panel, Front	*	1	
1-7	82-745-019-01		Foot		4	
1-8	82-157-210-01		Cabinet, Bottom	*	1	
1-9	82-157-005-01		Panel, Side	*	2	
1-10	82-157-014-01		Decorative screw	*	2	
1-11	82-157-003-01		Panel, Cassette	*	1	
1-12	82-157-004-01		Window, Cassette	*	1	
1-13	82-157-008-01		Cassette plate	*	1	
1-14	82-157-012-01		Cabinet, Steel	*	1	
1-15	82-380-439-01		Spacer, Back panel	AD-6500	1	
1-16	82-157-002-01		Guide, Bias lever	*	1	
1-17	82-157-010-01		Guide, Button	*	1	
1-18	82-157-011-01		Guide, Volume	*	1	
1-19	82-745-012-01		Guide, Push-button C		1	

EXPLODED VIEW–2

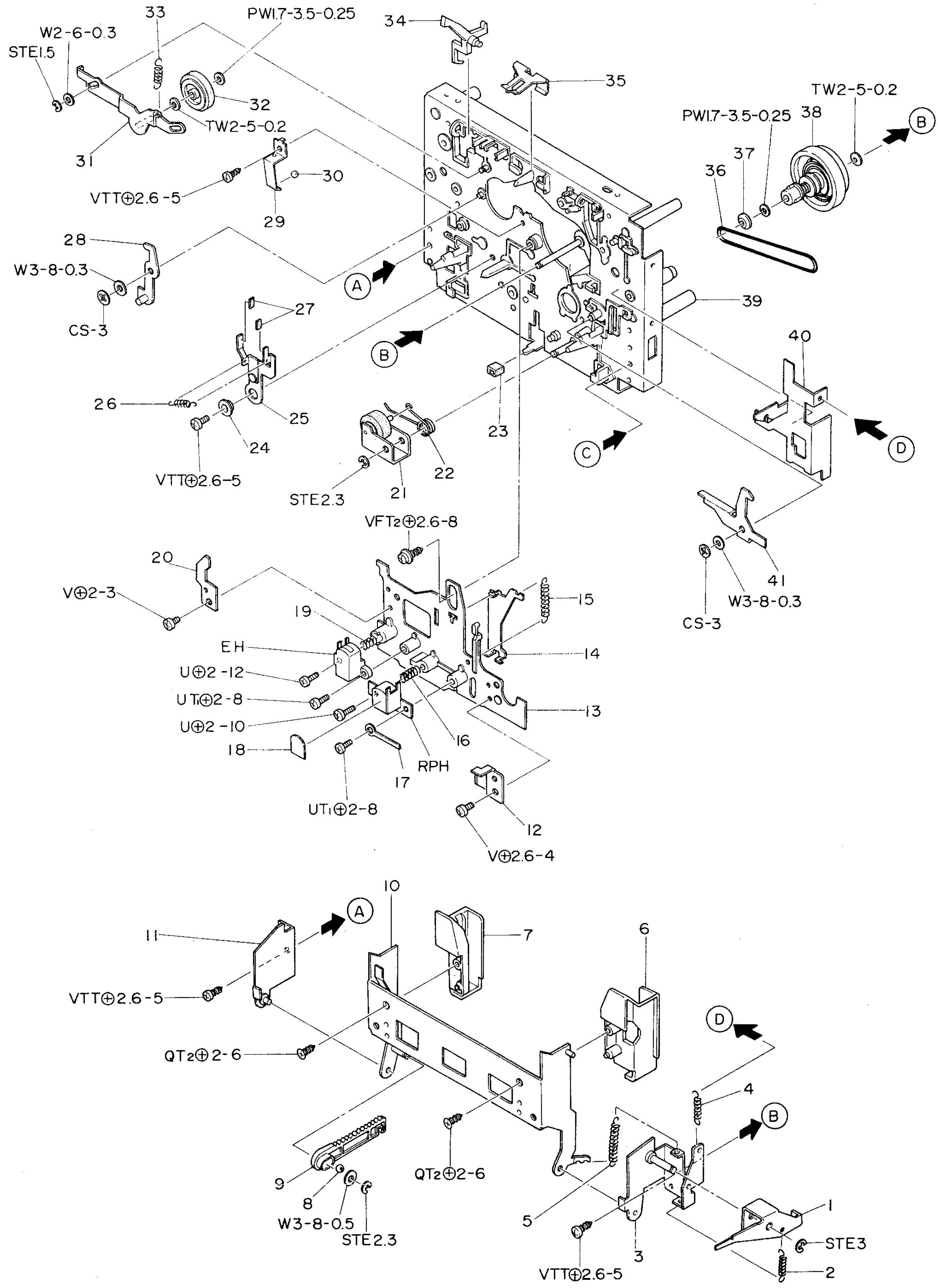

U⊕2.6-6
P.C.B-N
21a,b
A
28
18
VT2⊕2.6-8
20b
VTT⊕3-5
19b
P.C.B-J
U⊕2.6-6
22
UT2⊕2.6-6
23
T1
U⊕2.6-6
VTT⊕3-5
P.C.B-F
23
U⊕2.6-6
P.C.B-L
VTT⊕2.6-5
14
17
P.C.B-D
16
13
24
B
VTT⊕2.6-5
VTT⊕2.6-5
15
P.C.B-I
U⊕2.6-6
U⊕2.6-6
4
12
P.C.B-A
U⊕2.6-6
P.C.B-B
VTT⊕2.6-5
27
11
VTT⊕2.6-5
10
26
U⊕2.6-6
P.C.B-M
P.C.B-C
VTT⊕2.6-5
8
9
STE1.5
7
A
TW2-5-0.2
P.C.B-E
VTT⊕2.6-5
V⊕3-5
P.C.B-H
3
4
B
6
Q⊕3-5
2
1
V⊕3-5
5
VTT⊕2.6-5

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
2-1	82-157-001-01		Bias lever	*	2
2-2	87-040-130-01		Counter		1
2-3	82-745-010-01		Push-button C		1
2-4	82-748-208-01		Cushion	SA-C50	2
2-5	82-157-205-01		Front chassis ass'y	*	1
2-6	82-157-203-01		Side chassis	*	1
2-7	82-157-231-01		Magnet, Ring	*	1
2-8	82-157-215-01		Relay pulley	*	1
2-9	82-157-211-01		Rubber belt B	*	1
2-10	82-745-008-01		Push-button A		1
2-11	82-157-209-01		Rod, Dolby	*	1
2-12	82-385-383-01		Stopper, Rod	AD-6300	1
2-13	82-157-213-01		Amp. Chassis ass'y	*	1
2-14	82-157-640-01		Sield sheet A	*	1
2-15	82-157-207-01		Holder, Circuit board	*	1
2-16	82-157-208-01		Rod, Power	*	1
2-17	87-085-165-01		Cord bushing		1
2-18	82-157-216-01		Holder A, Circuit board	*	1
2-19a	82-157-224-01		Rear chassis (H model only)	*	1
2-19b	82-157-019-01		Rear chassis (U model only)	*	1
2-20a	82-157-019-01		Sheet, Jack (H model only)	*	1
2-20b	82-157-023-01		Sheet, Jack (U model only)	*	1
2-21a	87-034-934-01		AC power cord (H model only)		1
2-21b	87-034-935-01		AC power cord (U model only)		1
2-22	87-084-063-01		Nylon rivet 3-5.5ϕ		2
2-23	87-085-102-01		Nylon rivet 3.5-5.5ϕ		6
2-24	82-387-273-01		Holder, Jack	AD-6800	1
2-25	82-488-234-01		Holder, Voltage selector (H model only)	AX-7400	1
2-26	82-157-229-01		Cover, AC switch	*	1
2-27	87-085-090-01		Nylon rivet		1
2-28	82-157-025-01		Name plate, Spec. (U model only)	*	1

H model only



EXPLODED VIEW–3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W2-6-0.3
STE1.5
PW1.7-3.5-0.25
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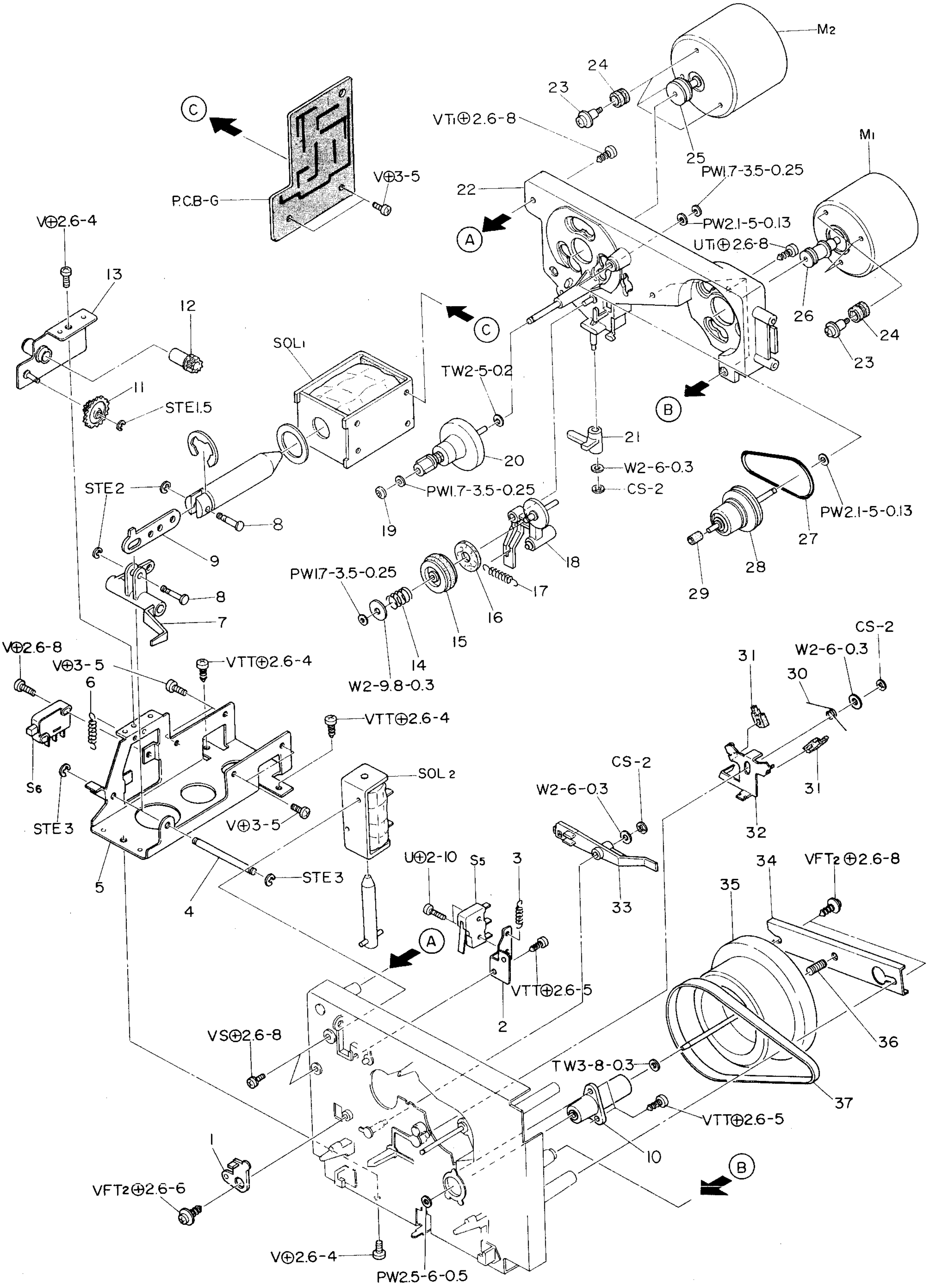
35
32
31
TW2-5-0.2
TW2-5-0.2
PW1.7-3.5-0.25
38
37
36
B
30
VTT⊕2.6-5
29
28
W3-8-0.3
CS-3
A
27
39
B
40
26
25
24
VTT⊕2.6-5
23
22
21
STE2.3
C
D
VFT2⊕2.6-8
20
V⊕2-3
19
15
41
W3-8-0.3
CS-3
EH
14
U⊕2-12
UT1⊕2-8
U⊕2-10
13
18
16
RPH
17
UT1⊕2-8
12
V⊕2.6-4
10
A
11
7
6
VTT⊕2.6-5
QT2⊕2-6
D
4
B
9
8
W3-8-0.5
STE2.3
QT2⊕2-6
5
1
STE3
3
VTT⊕2.6-5
2

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
3-1	82-156-207-01		Lever, Eject		1	
3-2	82-304-264-01		E-spring, Eject lever	AD-6900	1	
3-3	82-319-220-01		Holder C, Box R ass'y	AD-M600	1	
3-4	82-392-374-01		E-spring, Pause A	AD-6550	1	
3-5	83-319-230-01		E-spring, Cassette lid	AD-M600	1	
3-6	82-155-012-01		Holder R, Cassette		1	
3-7	82-155-011-01		Holder L, Cassette		1	
3-8	87-073-005-01		Steel ball 2ϕ		1	
3-9	82-541-240-01		Oil damp lever	TPR-950	1	
3-10	82-156-213-01		Cassette box ass'y		1	
3-11	82-319-223-01		Holder C, Box L ass'y	AD-M600	1	
3-12	82-303-294-01		Holder, T-spring	AD-6900	1	
3-13	82-319-204-01		Outsert actuating chassis ass'y	AD-M600	1	
3-14	82-319-210-01		Slide plate (Actuating)	AD-M600	1	
3-15	82-319-229-01		E-spring (Actuating)	AD-M600	1	
3-16	82-392-347-01		C-spring, Head	AD-6550	1	
3-17	82-365-280-01		Holder, Wire		1	
3-18	87-057-597-01		Label, Head		1	
3-19	82-392-357-01		C-spring, EH platform	AD-6550	1	
3-20	82-319-209-01		Guide, Idler lever	AD-M600	1	
3-21	82-319-252-01		Pinch roller ass'y	AD-M600	1	
3-22	82-307-222-01		Pinch roller ass'y	AD-6700	1	
3-23	82-397-307-01		G-cushion, Eject lever	AD-6550	1	
3-24	82-319-243-01		Frange collar, Back tension	AD-M600	1	
3-25	82-319-259-01		Lever, Back tension ass'y	AD-M600	1	
3-26	82-319-258-01		E-spring, Back tension	AD-M600	1	
3-27	82-303-382-01		Felt, Sub brake	AD-6900	2	
3-28	82-319-235-01		Lever, R.A.C ass'y	AD-M600	1	
3-29	82-319-215-01		P-spring, Actuating A	AD-M600	1	
3-30	82-215-341-01		3/32 steel ball		1	
3-31	82-303-342-01		Lever, Play idler ass'y	AD-6900	1	
3-32	82-303-274-01		Idler play ass'y	AD-6900	1	
3-33	82-303-325-01		E-spring, Play idler	AD-6900	1	
3-34	82-303-346-01		Lever, REC blocking	AD-6900	1	
3-35	82-319-214-01		P-spring, Cassette	AD-M600	1	
3-36	82-463-219-01		Belt, Counter		1	
3-37	82-303-398-01		Cap, Take up reel platform	AD-6900	1	
3-38	82-303-249-01		Take up reel ass'y	AD-6900	1	
3-39	82-319-202-01		Outsert chassis sub ass'y	AD-M600	1	
3-40	82-155-210-01		Lock lever		1	
3-41	82-156-214-01		Lever, Play switch		1	

EXPLODED VIEW—4


M2
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23
VT1⊕2.6-8
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M1
PW1.7-3.5-0.25
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PW2.1-5-0.13
UT1⊕2.6-8
A
26
24
23
B
C
P.C.B-G
V⊕3-5
V⊕2.6-4
13
12
C
SOL1
TW2-5-0.2
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STE1.5
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W2-6-0.3
CS-2
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STE2
PW1.7-3.5-0.25
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8
9
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PW2.1-5-0.13
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29
PW1.7-3.5-0.25
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8
16
7
15
14
W2-9.8-0.3
V⊕2.6-8
V⊕3-5
VTT⊕2.6-4
6
VTT⊕2.6-4
CS-2
W2-6-0.3
31
30
S6
SOL2
STE3
V⊕3-5
5
4
STE3
CS-2
W2-6-0.3
31
32
33
U⊕2-10
S5
3
34
VFT2⊕2.6-8
35
A
VTT⊕2.6-5
2
36
VS⊕2.6-8
TW3-8-0.3
37
VTT⊕2.6-5
10
1
B
VFT2⊕2.6-6
V⊕2.6-4
PW2.5-6-0.5

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
4-1	82-303-288-01		Lever, Actuating lock	AD-6900	1
4-2	82-303-350-01		Holder, REC blocking	AD-6900	1
4-3	82-319-251-01		E-spring, CrO_2	AD-M600	1
4-4	82-304-244-01		Shaft, Play lever	AD-6900	1
4-5	82-156-215-01		Holder, Solenoid		1
4-6	82-304-249-01		E-spring, Actuating	AD-6900	1
4-7	82-304-232-01		Lever, PLAY	AD-6900	1
4-8	82-319-269-01		Shaft, Plunger	AD-M600	2
4-9	82-319-250-01		Slide plate, PLAY B	AD-M600	1
4-10	82-392-256-01		Shaft bearing ass'y	AD-6550	1
4-11	82-319-239-01		Gear, Oil	AD-M600	1
4-12	82-534-264-01		Gear, Oil damp		1
4-13	82-319-225-01		Holder, Oil damp ass'y	AD-M600	1
4-14	82-303-322-01		C-spring, FR idler	AD-6900	1
4-15	82-303-271-01		Idler pulley FR ass'y	AD-6900	1
4-16	82-303-335-01		Felt, 6.4–14	AD-6900	1
4-17	82-303-353-01		E-spring, FR lever	AD-6900	1
4-18	82-303-277-01		FR lever ass'y	AD-6900	1
4-19	82-303-398-01		Cap, Take up reel platform	AD-6900	1
4-20	82-154-222-01		Supply reel platform sub ass'y		1
4-21	82-303-292-01		Lever, FR eject	AD-6900	1
4-22	82-319-232-01		Mechanism sub chassis ass'y	AD-M600	1
4-23	87-081-483-01		Motor screw, M2.6		6
4-24	82-439-319-01		Rubber cushion B		6
4-25	82-319-247-01		Motor pulley FR	AD-M600	1
4-26	82-156-209-01		Motor pulley		1
4-27	82-303-385-01		Rubber belt FR B	AD-6900	1
4-28	82-303-330-01		Slip pulley ass'y	AD-6900	1
4-29	82-303-309-01		Rubber, Drive	AD-6900	1
4-30	82-303-318-01		T-spring, Brake	AD-6900	1
4-31	82-439-426-01		Brake shoe A	TPR-300	2
4-32	82-303-297-01		Slide plate, Brake	AD-6900	1
4-33	82-303-286-01		Lever, Brake	AD-6900	1
4-34	82-319-238-01		Plate, Flywheel	AD-M600	1
4-35	82-156-201-01		Flywheel ass'y		1
4-36	82-331-107-01		Thrust for screw		1
4-37	82-319-227-01		Rubber belt, Flywheel	AD-M600	1

ACCESSORIES/PACKAGE

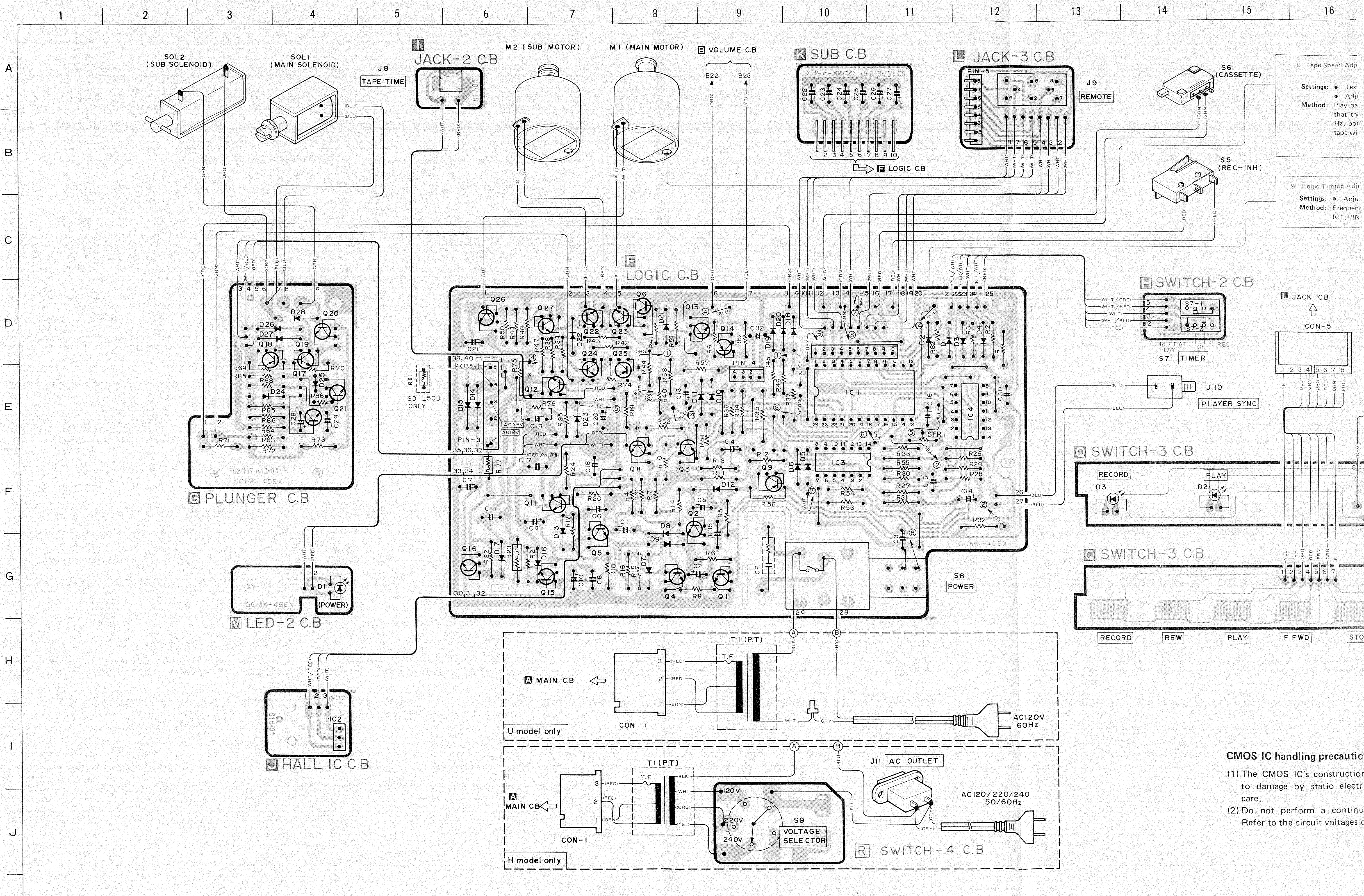
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-157-856-01		Printed indiv., Packing	*	1
2	82-157-852-01		Cushion L, Printed indiv.	*	1
3	82-157-853-01		Cushion R, Printed indiv.	*	1
4	87-056-614-01		Poly-vinyl sack		1
5	87-056-605-01		Poly-vinyl sack		1
6a	82-157-906-01		Instructions booklet (H model only)	*	1
6b	82-157-904-01		Instructions booklet (U model only)	*	1
7	87-051-171-01		Poly-vinyl sack (for instruction)		1
8	87-056-034-01		Service station list (U model only)		1
9	87-056-035-01		Card, Limited warranty (U model only)		1
10	87-056-009-41		Distributors list (H model only)		1
11	87-056-045-01		Guarantee card (U model only)		1
12	87-056-042-01		Label, POP		1
13	87-032-845-01		Siemens plug (H model only)		1
14	86-944-012-01		Connection cord CW-129BSK		2
15	87-058-024-01		Head cleaning pole ass'y		1

AIWA CO., LTD.

Printed in Japan

AIWA

WIRING–2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A
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H
I
J
SOL2 (SUB SOLENOID)
SOL1 (MAIN SOLENOID)
J8
TAPE TIME
I JACK-2 C.B
617-01
M2 (SUB MOTOR)
M1 (MAIN MOTOR)
B VOLUME C.B
B22
B23
K SUB C.B
82-157-618-01 GCMK-45EX
C22 C23 C24 C25 C26 C27
F LOGIC C.B
L JACK-3 C.B
PIN-5
J9
REMOTE
S6 (CASSETTE)
S5 (REC-INH)
F LOGIC C.B
G PLUNGER C.B
82-157-613-01
GCMK-45EX
R81
SD-L50U ONLY
PIN-3
PIN-4
IC1
IC3
IC4
SFR1
CP1
S8
POWER
GCMK-45EX
H SWITCH-2 C.B
S7
TIMER
REPEAT PLAY OFF REC
L JACK C.B
CON-5
J10
PLAYER SYNC
Q SWITCH-3 C.B
RECORD
PLAY
D3
D2
Q SWITCH-3 C.B
RECORD
REW
PLAY
F.FWD
STO
M LED-2 C.B
D1
(POWER)
J HALL IC C.B
IC2
616-01
T1 (P.T)
T.F
A MAIN C.B
CON-1
AC120V 60Hz
U model only
J11 AC OUTLET
AC120/220/240 50/60Hz
S9 VOLTAGE SELECTOR
120V
220V
240V
R SWITCH-4 C.B
H model only
(WHT)
(RED)
(BLU)
(GRN)
(ORG)
(YEL)
(PUL)
(BRN)
(GRY)
(BLK)

1. Tape Speed Adj

Settings: ● Test
● Adj

Method: Play ba
that th
Hz, bot
tape wi

9. Logic Timing Adj

Settings: ● Adju

Method: Frequen
IC1, PIN

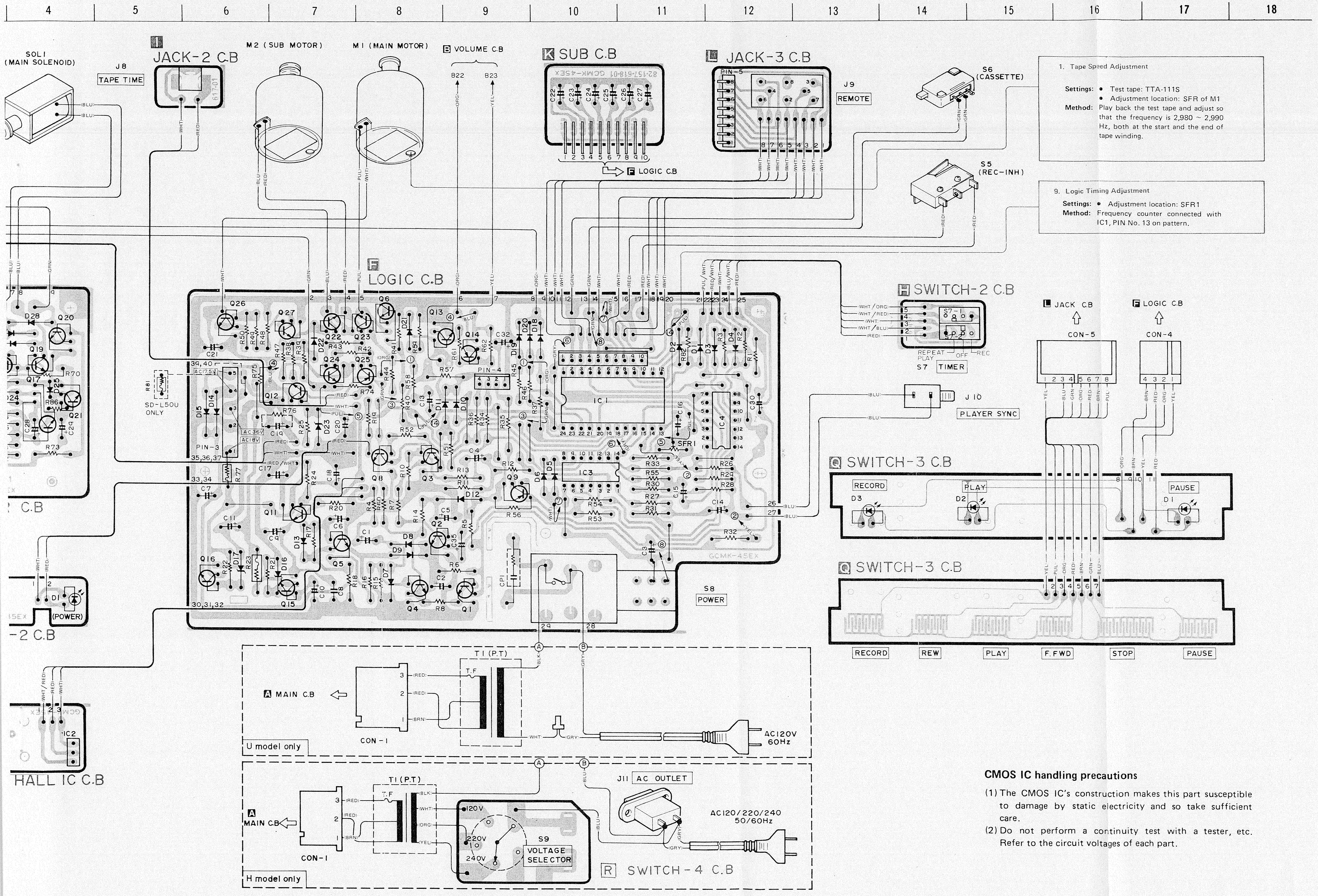
CMOS IC handling precautio

(1) The CMOS IC's constructio
to damage by static electr
care.

(2) Do not perform a continu
Refer to the circuit voltages c

NOTES (1) ▨ B(+) Pattern ▨ Component side pattern ▨ Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.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17
18
SOL1 (MAIN SOLENOID)
J8 TAPE TIME
I JACK-2 C.B
M2 (SUB MOTOR)
M1 (MAIN MOTOR)
B VOLUME C.B
B22
B23
K SUB C.B
82-157-618-01 GCMK-45EX
F LOGIC C.B
L JACK-3 C.B
PIN-5
J9 REMOTE
S6 (CASSETTE)
S5 (REC-INH)
F LOGIC C.B
GCMK-45EX
IC1
IC3
IC4
SFR1
PIN-3
PIN-4
R81
SD-L50U ONLY
AC17.5V
AC36V
AC18V
30,31,32
33,34
35,36,37
39,40
H SWITCH-2 C.B
S7 TIMER
REPEAT
PLAY
OFF
REC
L JACK C.B
F LOGIC C.B
CON-5
CON-4
J10 PLAYER SYNC
Q SWITCH-3 C.B
RECORD
PLAY
PAUSE
D3
D2
D1
Q SWITCH-3 C.B
RECORD
REW
PLAY
F.FWD
STOP
PAUSE
S8 POWER
(POWER)
-2 C.B
HALL IC C.B
IC2
T1 (P.T)
T.F
A MAIN C.B
CON-1
U model only
AC120V 60Hz
T1 (P.T)
A MAIN C.B
CON-1
120V
220V
240V
S9 VOLTAGE SELECTOR
R SWITCH-4 C.B
J11 AC OUTLET
AC120/220/240 50/60Hz
H model only

1. Tape Speed Adjustment

Settings: • Test tape: TTA-111S
• Adjustment location: SFR of M1

Method: Play back the test tape and adjust so that the frequency is 2,980 ~ 2,990 Hz, both at the start and the end of tape winding.

9. Logic Timing Adjustment

Settings: • Adjustment location: SFR1

Method: Frequency counter connected with IC1, PIN No. 13 on pattern.

CMOS IC handling precautions

(1) The CMOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care.

(2) Do not perform a continuity test with a tester, etc. Refer to the circuit voltages of each part.

NOTES (1) ▨ B(+) Pattern ▨ Component side pattern ▨ Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

CIRCUIT EXPLANATION

Unlike previously used slide type switches, this deck employs transistors for switching between recording and playback. The Q827-Q830 circuit produces a governing signal for recording and playback.

(1) When the power is turned on, current flows through R843 to charge C811, and when the latter is charged completely, voltage in divided at an equal ratio to R843, R845 and R847 and Q828 comes on.

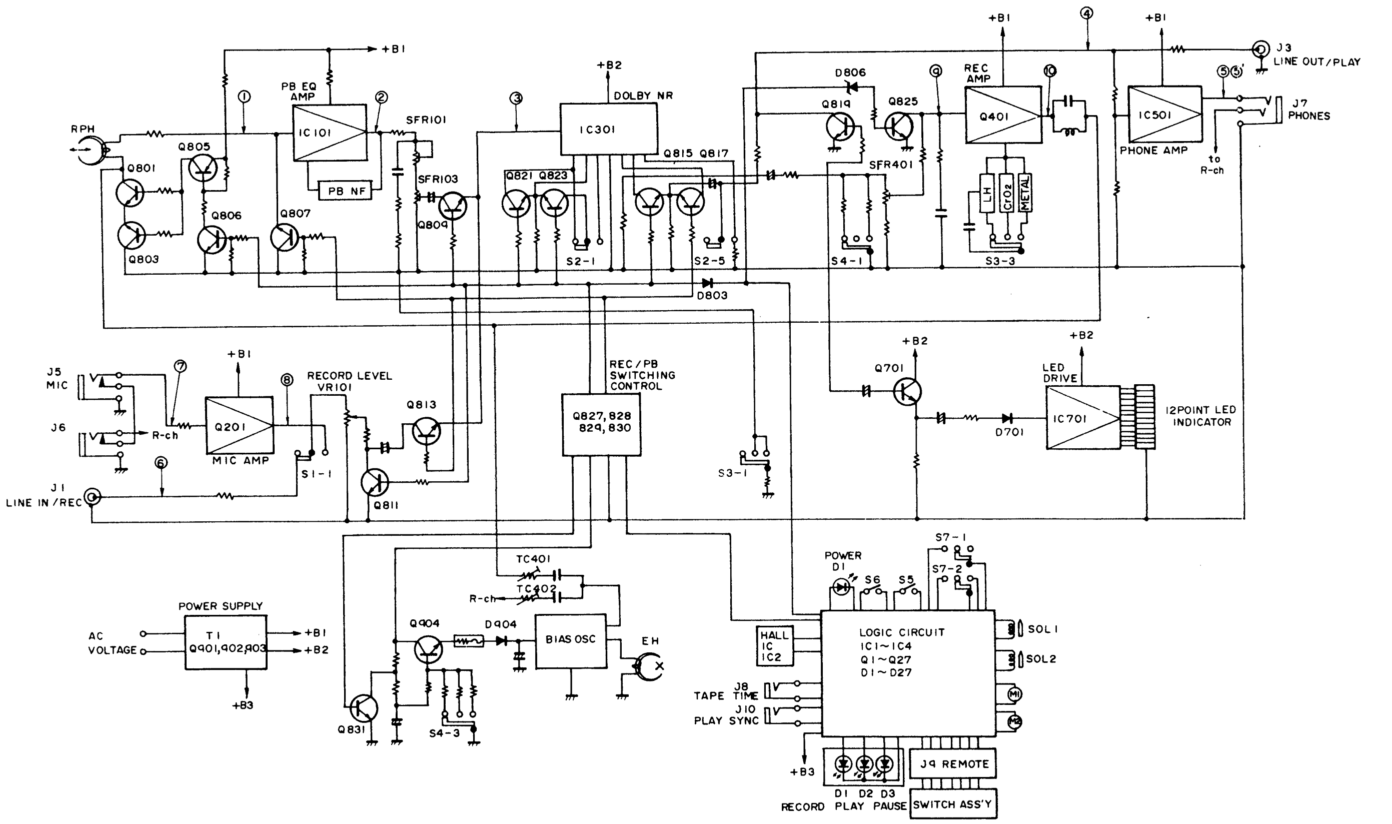
(2) When Q828 comes on, Q829 will do likewise, and this will result in playback governor voltage to be produced from the collector in Q828. At this time since the voltage passing through D801 will be increased. Q830 will go off. Performed when the power is turned on, mode will be switched to playback.

(3) When recording, the O-Rec of the logic IC (TC-9121P) reaches H level and the voltage of the IC is presented to the base of Q827 through R841 and Q827 comes on. According C811 will discharge through R859 then base voltage of Q828 becomes low and Q829 goes off.

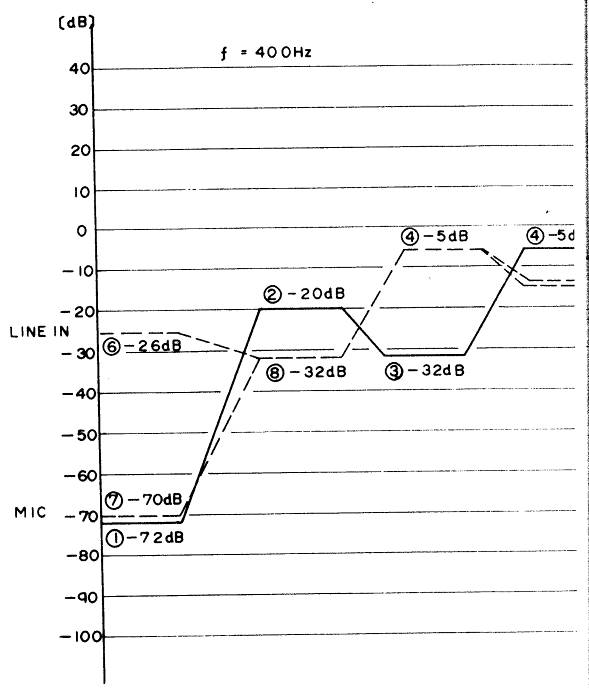
(4) When Q828 goes off, Q829 will also go off and since no voltage will flow in the collector the playback governor, voltage is not produced. In this connection, D801 will not produce any voltage, then bias voltage divided by the resistors of R849, R850, R852 will be produced to transistor Q830 and it will turn to on. After this, recording governor voltage is generated from its collector.

(5) Muting is achieved by making transistors Q819, 820, 825 and 826 turn ON.

BLOCK DIAGRAM

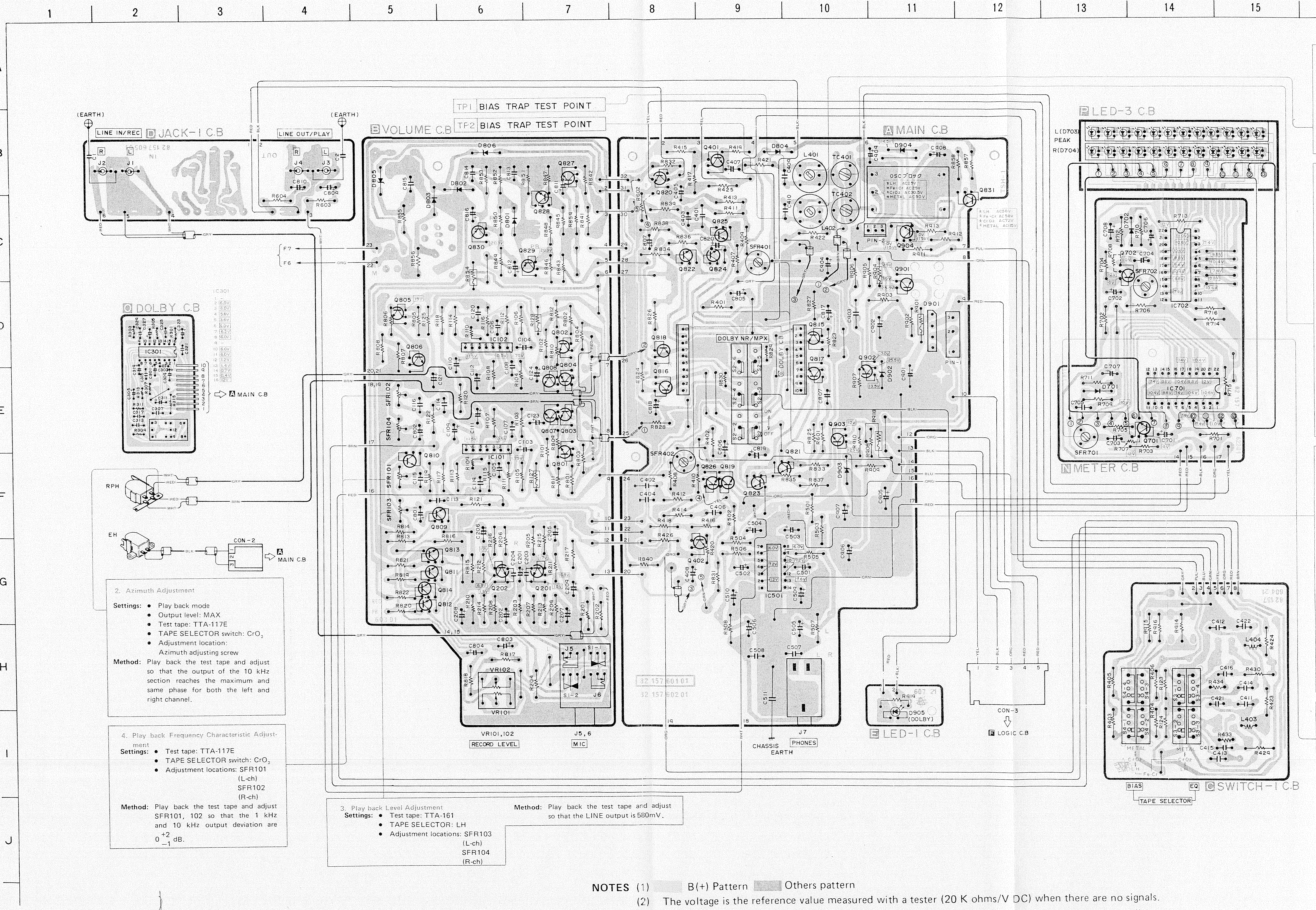

+B1
+B2
RPH
Q801
Q803
Q805
Q806
Q807
①
②
③
④
PB EQ AMP
IC101
PB NF
SFR101
SFR103
Q809
DOLBY NR
IC301
Q821 Q823
Q815 Q817
S2-1
S2-5
D803
D806
Q819
Q825
SFR401
S4-1
⑨
REC AMP
Q401
⑩
LH
CrO2
METAL
S3-3
IC501
PHONE AMP
J3 LINE OUT/PLAY
⑤⑤'
J7 PHONES
to R-ch
J5 MIC
J6
R-ch
⑦
⑧
⑥
Q201
MIC AMP
RECORD LEVEL VR101
S1-1
Q813
Q811
J1 LINE IN/REC
REC/PB SWITCHING CONTROL
Q827, 828 829, 830
S3-1
Q701
LED DRIVE
IC701
D701
12POINT LED INDICATOR
POWER SUPPLY
AC VOLTAGE
T1 Q901,902,903
+B3
TC401
TC402
Q904
D904
BIAS OSC
EH
Q831
S4-3
POWER D1
S6
S5
S7-1
S7-2
HALL IC IC2
LOGIC CIRCUIT IC1~IC4 Q1~Q27 D1~D27
SOL1
SOL2
M1
M2
J8 TAPE TIME
J10 PLAY SYNC
J9 REMOTE
SWITCH ASS'Y
D1 D2 D3
RECORD PLAY PAUSE

LEVEL DIAGRAM



AIWA

WIRING—1


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
(EARTH)
LINE IN/REC
D JACK-1 C.B
LINE OUT/PLAY
B VOLUME C.B
TP1 BIAS TRAP TEST POINT
TP2 BIAS TRAP TEST POINT
A MAIN C.B
P LED-3 C.B
L(D703) PEAK R(D704)
C DOLBY C.B
IC301
A MAIN C.B
RPH
EH
CON-2
A MAIN C.B
DOLBY NR/MPX
N METER C.B
SFR701
SFR702
IC701
IC702
VR101,102
RECORD LEVEL
J5, 6
MIC
CHASSIS EARTH
J7
PHONES
E LED-1 C.B
D905 (DOLBY)
CON-3
F LOGIC C.B
BIAS
EQ
TAPE SELECTOR
G SWITCH-1 C.B
METAL
CrO2
Fe-Cr
LH

2. Azimuth Adjustment

Settings:
- Play back mode
- Output level: MAX
- Test tape: TTA-117E
- TAPE SELECTOR switch: CrO_2
- Adjustment location:
  Azimuth adjusting screw

Method: Play back the test tape and adjust so that the output of the 10 kHz section reaches the maximum and same phase for both the left and right channel.

4. Play back Frequency Characteristic Adjustment

Settings:
- Test tape: TTA-117E
- TAPE SELECTOR switch: CrO_2
- Adjustment locations: SFR101 (L-ch)
  SFR102 (R-ch)

Method: Play back the test tape and adjust SFR101, 102 so that the 1 kHz and 10 kHz output deviation are 0^{+2}_{-1} dB.

3. Play back Level Adjustment

Settings:
- Test tape: TTA-161
- TAPE SELECTOR: LH
- Adjustment locations: SFR103 (L-ch)
  SFR104 (R-ch)

Method: Play back the test tape and adjust so that the LINE output is 580mV.

5. Bias Tra

Settings: ●
●
●

Method: Ac
at
mi

6. LH REC/
Adjustm

Settings: ●
●
●
●
●
●

Method: R
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Settings diff
● METAL
Settings: ●
Rating: 0
● CrO_2 tap
Settings: ●
Rating: 0
● Fe-Cr tap
Settings: ●
Rating: 0

7. REC/PB
● CrO_2 ta

Settings ●
●
●
●
●
●

Settings diff
● METAL
Settings: ●
Rating: 41
● Fe-Cr tap
Settings: ●
Rating: 41
● LH tape
Settings: ●
Rating: 41

Method: Re
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8. Level Ind

Settings: ●
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●
●
●

Method: Ac
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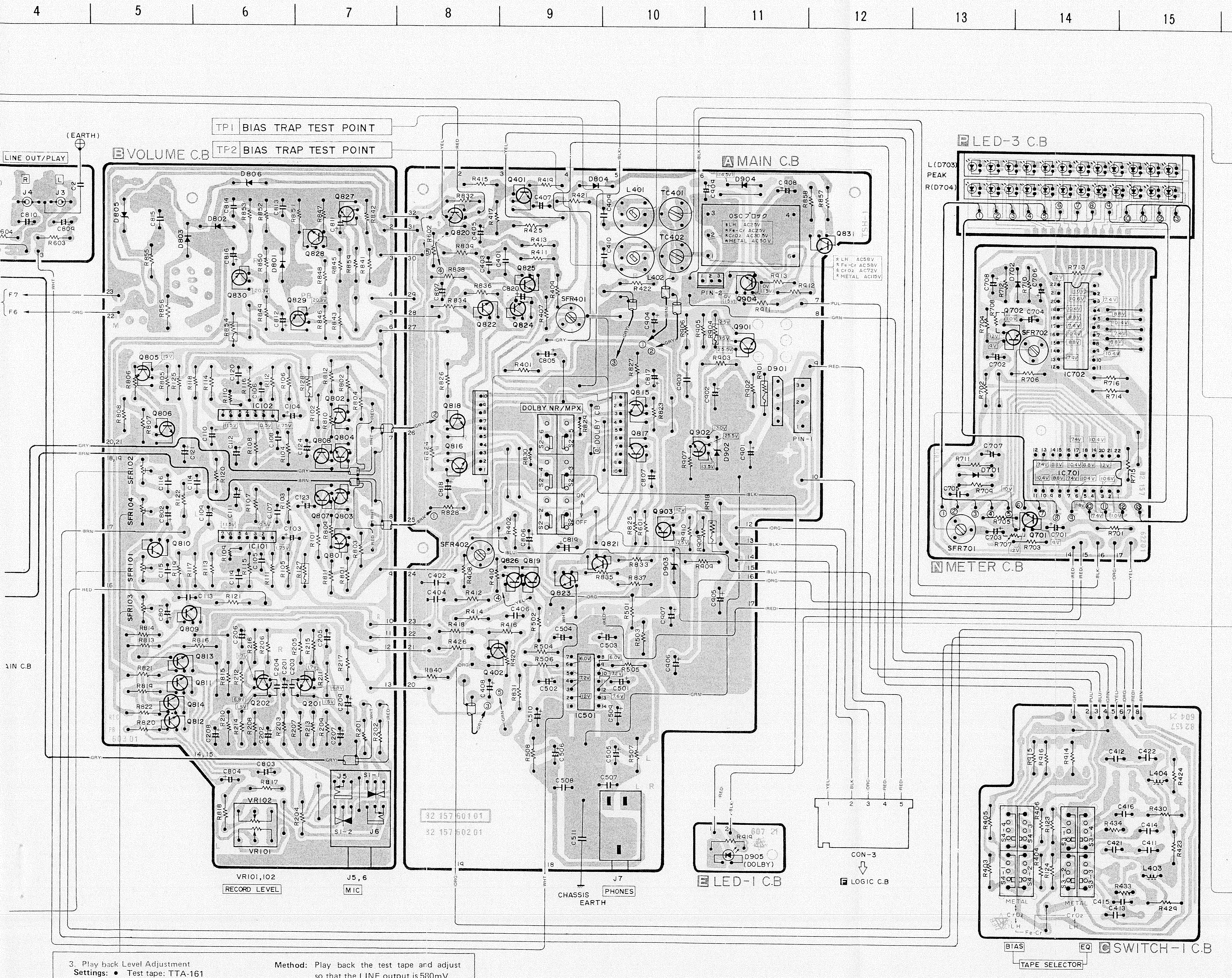
NOTES (1) ▨ B(+) Pattern ▩ Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.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18
TP1 BIAS TRAP TEST POINT
TP2 BIAS TRAP TEST POINT
(EARTH)
LINE OUT/PLAY
B VOLUME C.B
A MAIN C.B
P LED-3 C.B
L(D703) PEAK R(D704)
N METER C.B
DOLBY NR/MPX
C DOLBY C.B
OSC ブロック
PIN-2
PIN-1
IC101
IC102
IC501
IC701
IC702
SFR101
SFR102
SFR103
SFR104
SFR401
SFR402
SFR701
SFR702
L401
L402
TC401
TC402
L403
L404
VR101,102
RECORD LEVEL
J5,6
MIC
CHASSIS EARTH
J7
PHONES
E LED-1 C.B
D905 (DOLBY)
CON-3
F LOGIC C.B
G SWITCH-I C.B
BIAS
EQ
TAPE SELECTOR
METAL
CrO2
LH
Fe-Cr
AIN C.B

3. Play back Level Adjustment

Settings:
- Test tape: TTA-161
- TAPE SELECTOR: LH
- Adjustment locations: SFR103 (L-ch) SFR104 (R-ch)

Method: Play back the test tape and adjust so that the LINE output is 580mV.

5. Bias Trap Coil Adjustment

Settings:
- Recording mode
- Test points: TP1 (L-ch) TP2 (R-ch)
- Adjustment locations: L401 (L-ch) L402 (R-ch)

Method: Adjust L401, 402 so that the voltage at test point TP1, 2 is reduced to minimum value.

6. LH REC/PB Frequency Characteristic Adjustment

Settings:
- Recording mode
- Test tape: CS-10
- Output level: MAX
- TAPE SELECTOR switch: LH
- Input signal: −30 dB, 400 Hz 400 Hz
- Adjustment locations: TC401 (L-ch) TC402 (R-ch)

Method: Record and play back the 1 kHz and 10 kHz signals. Adjust TC401, 402 so that the 1 kHz and 10 kHz output deviation are 0 ± 0.5 dB.

Settings differ as below METAL, CrO_2 and LH

- **METAL tape**

Settings: • Test tape: TTA-119M
Rating: 0 ± 1.0 dB

- **CrO_2 tape**

Settings: • Test tape: TTA-119G
Rating: 0 ± 1.0 dB

- **Fe-Cr tape**

Settings: • Test tape: TTA-119E
Rating: 0 ± 1.0 dB

7. REC/PB Sensitivity Adjustment

- CrO_2 tape

Settings
- Recording mode
- Test tape: TTA-119G
- Input signal: −30 dB, 400 Hz
- Output level: MAX
- TAPE SELECTOR switch: LH
- Adjustment locations: SFR401 (L-ch) SFR402 (R-ch)

Settings differ as below METAL, Fe-Cr and LH.

- **METAL tape**

Settings: • Test tape: TTA-119M
Rating: 410mV ± 1.5 dB

- **Fe-Cr tape**

Settings: • Test tape: TTA-119E
Rating: 410 mV ± 1.5 dB

- **LH tape**

Settings: • Test tape: CS-10
Rating: 410 mV ± 1.5 dB
Method: Record and play back the test tape and adjust SFR401, 402 so that LINE OUTPUT is 410mV.

8. Level Indicator Adjustment

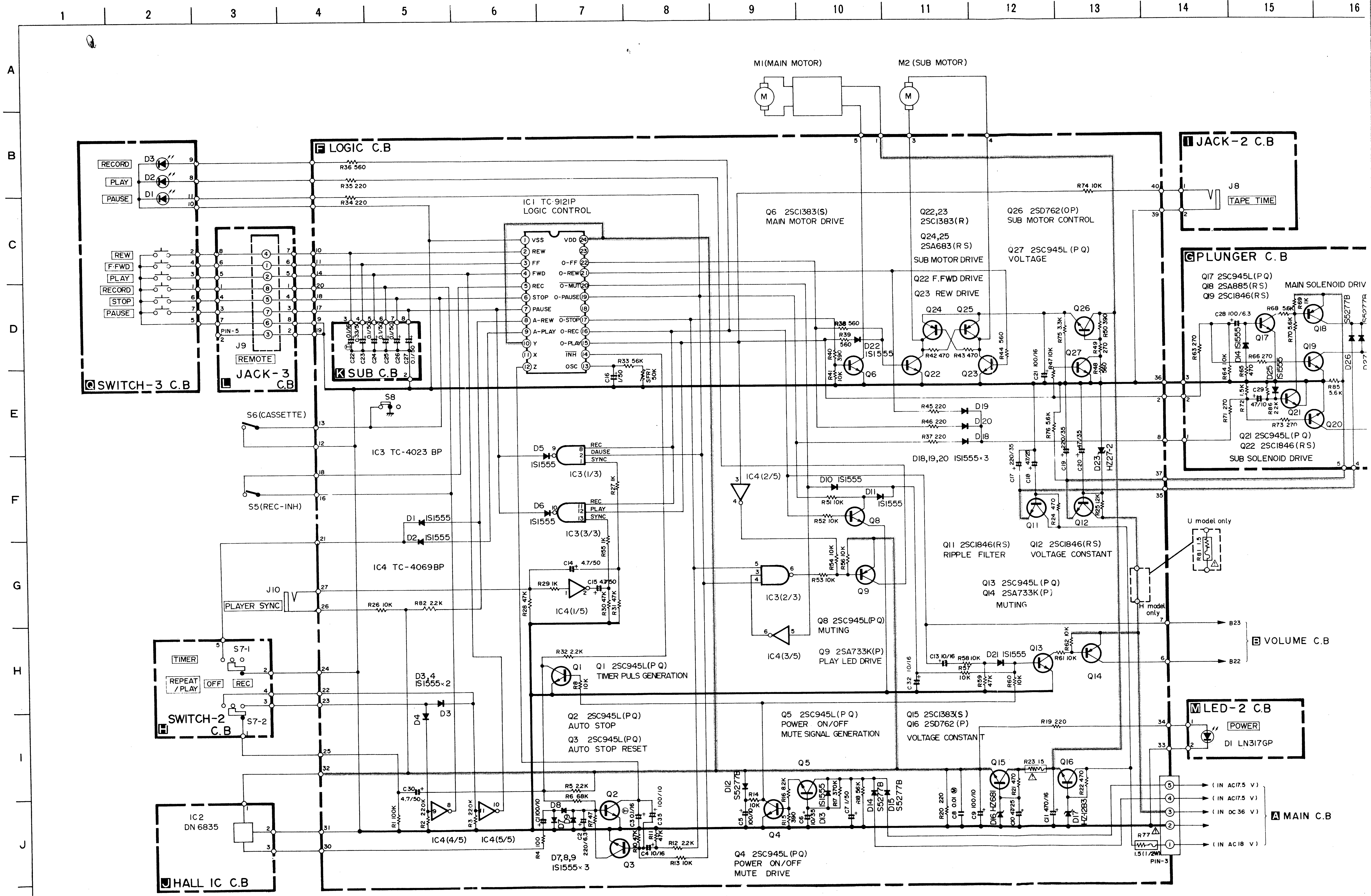
Settings:
- Recording mode
- Test tape: TTA-119D
- Input signal: 400 Hz, −10 dB
- DOLBY NR switch: OFF
- Adjustment location: SFR701 (L-ch) SFR702 (R-ch)

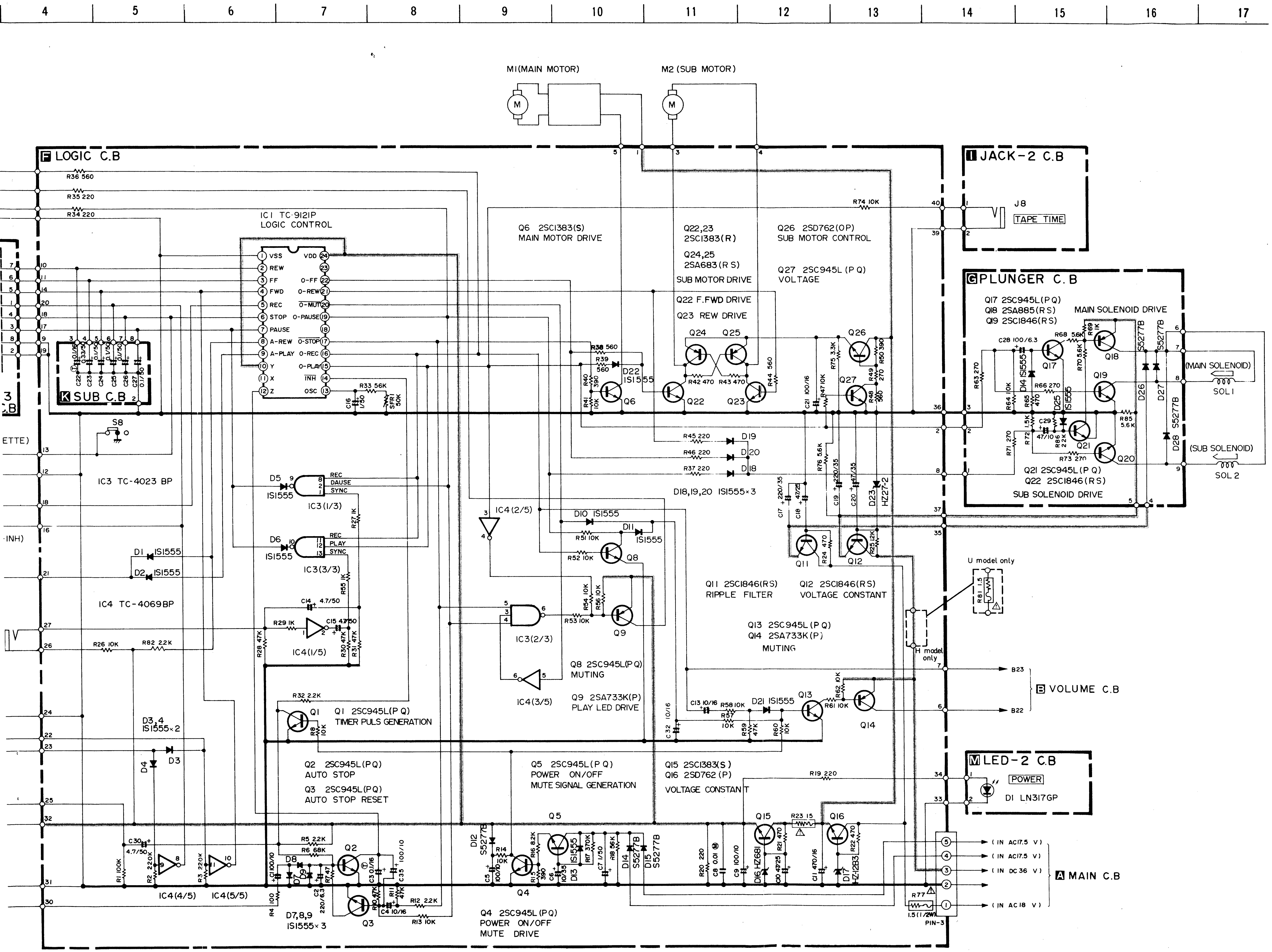
Method: Adjust RECORD VOLUME so that the LINE OUPUT is 410mV. Adjust SFR701, 702 so that 0 dB LED light up. Confirmed put out 0 dB LED when input signal decrease 1 dB.

NOTES (1) ░ B(+) Pattern ▨ Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

SCHEMATIC DIAGRAM–2


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
M1(MAIN MOTOR)
M2 (SUB MOTOR)
F LOGIC C.B
Q SWITCH-3 C.B
RECORD
PLAY
PAUSE
REW
F·FWD
STOP
D1 D2 D3
L JACK-3 C.B
J9
REMOTE
PIN-5
K SUB C.B
C22 C23 C24 C25 C26 C27
R36 560
R35 220
R34 220
IC1 TC-9121P
LOGIC CONTROL
VSS REW FF FWD REC STOP PAUSE A-REW A-PLAY Y X Z
VDD O-FF O-REW O-MUT O-PAUSE O-STOP O-REC O-PLAY INH OSC
R33 56K
C16 1/50
SFR1 50K
S8
S6(CASSETTE)
S5(REC-INH)
IC3 TC-4023 BP
D5 IS1555
D6 IS1555
IC3(1/3)
IC3(3/3)
REC DAUSE SYNC
REC PLAY SYNC
R27 1K
R55 1K
D1 IS1555
D2 IS1555
IC4 TC-4069BP
C14 4.7/50
C15 4.7/50
R29 1K
R28 47K
R30 47K
R31 47K
IC4(1/5)
J10
PLAYER SYNC
R26 10K
R82 2.2K
H SWITCH-2 C.B
TIMER
REPEAT /PLAY
OFF
REC
S7-1
S7-2
D3,4 IS1555×2
D4 D3
R32 2.2K
Q1
Q1 2SC945L(PQ)
TIMER PULS GENERATION
R8 10K
Q2 2SC945L(PQ)
AUTO STOP
Q3 2SC945L(PQ)
AUTO STOP RESET
R5 2.2K
R6 68K
C1 100/10
C3 0.1/16
C35 100/10
D8 D7 D9
C2 220/6.3
R7 47
R10 47K
R11 47K
C4 10/16
R12 2.2K
R13 10K
R4 100
D7,8,9 IS1555×3
Q2 Q3
C30 4.7/50
R1 100K
R2 220K
R3 220K
IC4(4/5)
IC4(5/5)
J HALL IC C.B
IC2 DN 6835
Q6 2SC1383(S)
MAIN MOTOR DRIVE
Q22,23 2SC1383(R)
Q24,25 2SA683(R S)
SUB MOTOR DRIVE
Q22 F.FWD DRIVE
Q23 REW DRIVE
Q26 2SD762(OP)
SUB MOTOR CONTROL
Q27 2SC945L(P Q)
VOLTAGE
R38 560
R39 560
R40 390
R41 10K
D22 IS1555
Q6 Q22 Q23 Q24 Q25 Q26 Q27
R42 470
R43 470
R44 560
R75 3.3K
R47 10K
R49 270
R48 390
R50 390
C21 100/16
R45 220
R46 220
R37 220
D19 D20 D18
D18,19,20 IS1555×3
R74 10K
IC4(2/5)
D10 IS1555
D11 IS1555
R51 10K
R52 10K
Q8
R54 10K
R56 10K
R53 10K
Q9
IC3(2/3)
IC4(3/5)
Q8 2SC945L(PQ)
MUTING
Q9 2SA733K(P)
PLAY LED DRIVE
C17 220/35
C18 47/25
R76 5.6K
C19 220/35
C20 47/35
D23 HZ27-2
R24 470
R25 1.2K
Q11 Q12
Q11 2SC1846(RS)
RIPPLE FILTER
Q12 2SC1846(RS)
VOLTAGE CONSTANT
Q13 2SC945L(P Q)
Q14 2SA733K(P)
MUTING
C13 10/16
R58 10K
R57 10K
D21 IS1555
R59 47K
R60 10K
R61 10K
R62 10K
C32 10/16
Q13 Q14
Q4 2SC945L(PQ)
POWER ON/OFF
MUTE DRIVE
Q5 2SC945L(P Q)
POWER ON/OFF
MUTE SIGNAL GENERATION
Q15 2SC1383(S)
Q16 2SD762 (P)
VOLTAGE CONSTANT
D12 S5277B
R14 10K
C5 100/10
R15 390
R16 8.2K
C6 10/35
D13 IS1555
R17 370K
C7 1/50
R18 56K
D14 S5277B
D15 S5277B
Q4 Q5
R20 220
C8 0.01
C9 100/10
D16 HZ6B1
C10 47/25
R21 470
Q15 Q16
R23 1.5
C11 470/16
D17 HZ12B3
R22 470
R19 220
R77 1.5(1/2W)
PIN-3
I JACK-2 C.B
J8
TAPE TIME
G PLUNGER C.B
Q17 2SC945L(P Q)
Q18 2SA885(R S)
Q19 2SC1846(R S)
MAIN SOLENOID DRIV
C28 100/6.3
R68 5.6K
R69 1K
R63 270
R64 10K
D14 IS1555
R65 470
R66 270
D25 IS1555
R70 5.6K
S5277B
D26 D27
Q17 Q18 Q19
R71 270
R72 1.5K
C29 47/10
R86 2.2K
R73 270
R85 5.6K
Q21 Q20
Q21 2SC945L(P Q)
Q22 2SC1846(R S)
SUB SOLENOID DRIVE
U model only
R81 1.5
H model only
B VOLUME C.B
B23
B22
M LED-2 C.B
POWER
D1 LN317GP
A MAIN C.B
(IN AC17.5 V)
(IN AC17.5 V)
(IN DC 36 V)
(IN AC18 V)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M1(MAIN MOTOR)
M2 (SUB MOTOR)
F LOGIC C.B
I JACK-2 C.B
J8
TAPE TIME
G PLUNGER C.B
K SUB C.B
M LED-2 C.B
POWER
D1 LN317GP
B VOLUME C.B
A MAIN C.B
IC1 TC-9121P
LOGIC CONTROL
VSS
REW
FF
FWD
REC
STOP
PAUSE
A-REW
A-PLAY
Y
X
Z
VDD
O-FF
O-REW
O-MUT
O-PAUSE
O-STOP
O-REC
O-PLAY
INH
OSC
Q6 2SC1383(S)
MAIN MOTOR DRIVE
Q22,23
2SC1383(R)
Q24,25
2SA683(R S)
SUB MOTOR DRIVE
Q22 F.FWD DRIVE
Q23 REW DRIVE
Q26 2SD762(OP)
SUB MOTOR CONTROL
Q27 2SC945L (P Q)
VOLTAGE
Q17 2SC945L(PQ)
Q18 2SA885(RS)
Q19 2SC1846(RS)
MAIN SOLENOID DRIVE
(MAIN SOLENOID)
SOL 1
(SUB SOLENOID)
SOL 2
Q21 2SC945L(P Q)
Q22 2SC1846(RS)
SUB SOLENOID DRIVE
IC3 TC-4023 BP
IC4 TC-4069BP
IC3(1/3)
IC3(3/3)
IC3(2/3)
IC4(1/5)
IC4(2/5)
IC4(3/5)
IC4(4/5)
IC4(5/5)
D18,19,20 IS1555×3
Q11 2SC1846(RS)
RIPPLE FILTER
Q12 2SC1846(RS)
VOLTAGE CONSTANT
Q13 2SC945L(PQ)
Q14 2SA733K(P)
MUTING
Q8 2SC945L(PQ)
MUTING
Q9 2SA733K(P)
PLAY LED DRIVE
Q1 2SC945L(PQ)
TIMER PULS GENERATION
Q2 2SC945L(PQ)
AUTO STOP
Q3 2SC945L(PQ)
AUTO STOP RESET
Q5 2SC945L(P Q)
POWER ON/OFF
MUTE SIGNAL GENERATION
Q15 2SC1383(S)
Q16 2SD762 (P)
VOLTAGE CONSTANT
Q4 2SC945L(PQ)
POWER ON/OFF
MUTE DRIVE
D3,4
IS1555×2
D7,8,9
IS1555×3
U model only
H model only
(IN AC17.5 V)
(IN AC17.5 V)
(IN DC36 V)
(IN AC18 V)
PIN-3
B23
B22
S8
ETTE)
·INH)
R36 560
R35 220
R34 220
R74 10K
R33 56K
SFR1 50K
R38 560
R39 560
R40 390
R41 10K
D22 IS1555
R42 470
R43 470
R44 560
R45 220
R46 220
R37 220
D19
D20
D18
R47 10K
R75 3.3K
R49 270
R50 390
R48 560
C21 100/16
R76 5.6K
C17 220/35
C18 47/25
C19 220/35
C20 47/35
D23 HZ27-2
R24 470
R25 12K
R81 1.5
C28 100/6.3
R68 5.6K
R69 10K
R70 5.6K
R63 270
D14 IS1555
R64 10K
R65 470
R66 270
D25 IS1555
R72 1.5K
C29 47/10
R86 2.2K
R85 5.6K
R71 270
R73 270
D26
D27
D28
S5277B
D10 IS1555
D11 IS1555
R51 10K
R52 10K
R54 10K
R56 10K
R53 10K
D5 IS1555
D6 IS1555
R27 1K
R55 1K
C14 4.7/50
C15 4.7/50
R29 1K
R28 47K
R30 47K
R31 47K
D1 IS1555
D2 IS1555
R26 10K
R82 2.2K
R32 2.2K
R8 10K
C13 10/16
R58 10K
R57 10K
D21 IS1555
R62 10K
R61 10K
R59 47K
R60 10K
C32 10/16
R19 220
R1 100K
R2 220K
R3 220K
C30 4.7/50
R5 2.2K
R6 68K
R7 47
C1 100/10
D8
D9
D7
C2 220/6.3
R4 100
C3 0.1/16
C35 100/10
R10 47K
R11 47K
C4 10/16
R12 2.2K
R13 10K
D12 S5277B
R14 10K
C5 100/10
R15 390
R16 8.2K
C6 10/16
D13 IS1555
R17 370K
C7 1/50
R18 56K
D14 S5277B
D15 S5277B
R20 220
C8 0.01
C9 100/10
D16 HZ6B1
C10 47/25
R21 470
R23 1.5
C11 470/16
D17 HZ12B3
R22 470
R77 1.5(1/2W)
C16 1/50
C22 0.1/50
C23 0.1/50
C24 0.1/50
C25 0.1/50
C26 0.1/50
C27 0.1/50

ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
≪ MAIN CIRCUIT BOARD SECTION ≫		
PCB-A	82-157-602-21	Main circuit board
IC501	87-027-382-01	IC, LA4170
Q401,402,820, 902	89-309-455-61	Transistor, 2SC945L(PQ)
Q815,816,817, 818,819,820, 821,822,823, 824	89-309-456-01	Transistor, 2SC945L(P)
Q825,826	89-320-014-01	Transistor, 2SC2001K(S)
Q901,903,904	89-408-804-51	Transistor, 2SD880Y(GR)
D901	87-027-376-01	Encapsulated, 1B4B41
D902	87-027-686-01	Zener diode, HZ12A1
D903	87-027-509-01	Zener diode HZ12B3
D904	87-027-097-01	Diode, 1S1555
L401,402	82-304-701-01	Coil, 22mH
TC401,402	85-708-604-21	Trimmer, 30pF
BIAS OSC UNIT	82-157-641-01	OSC unit
J7	87-032-983-01	Jack, 6.3φ (PHONES)
S2	82-324-631-01	Push-switch (DOLBY-NR)
SFR401,402	87-021-614-01	Semi-fixed resistor, 22kΩ-B
PIN-1	87-032-897-01	Pin, 3P
PIN-2	87-032-903-01	Pin, 3P
		< Resistors >
⚠ R901	87-029-017-01	10Ω ¼w Fuse resistor
⚠ R918	87-029-117-01	10Ω ½w Fuse resistor
⚠ R904	87-029-084-01	33Ω ½w Fuse resistor
⚠ R902	87-029-092-01	470Ω ¼w Fuse resistor
		< Capacitors >
C902	87-015-561-01	330μF 50V Electrolytic
C901	87-015-641-01	1000μF 50V Electrolytic
C906	87-015-466-01	330μF 25V Electrolytic
C905	87-015-459-01	1000μF 25V Electrolytic
≪ VOLUME CIRCUIT BOARD SECTION ≫		
PCB-B	82-157-603-21	Volume circuit board
IC101,102	87-027-182-01	IC, μPC1023H
Q201,202	89-312-222-01	Transistor, 2SC1222E
Q801,802,803, 804	89-322-405-01	Transistor, 2SC2240(BL)
Q805	89-109-706-01	Transistor, 2SA970(BL)
Q806,809,810, 811,812,813, 814	89-309-456-01	Transistor, 2SC945L(P)
Q807,808	89-320-014-01	Transistor, 2SC2001K(S)
Q827,828,831	89-304-455-61	Transistor, 2SC945L(PQ)
Q829,830	89-107-335-01	Transistor, 2SA733K(P)
D801,802,803	87-027-097-01	Diode, 1S1555
D805,806	87-027-393-01	Zener diode, HZ4C2
J5,6	87-032-957-01	Jack, 6.3φ w/switch (MIC)
VR101,102	82-150-621-01	Volume, 50kΩ-Ax2(REC LEVEL)
SFR101,102, 103,104	87-021-480-01	Semi-fixed resistor, 50kΩ-B
		< Resistor >
⚠ R127,128,854	87-029-082-01	100Ω ¼w Fuse resistor
		< Capacitors >
C205,206,803, 804	87-015-241-01	1μF 50V Electrolytic LL
C201,202	87-015-243-01	3.3μF 50V Electrolytic LL
C103,104,109, 110	87-015-246-01	4.7μF 25V Electrolytic LL
C115,116	87-014-053-01	680pF PP
≪ SWITCH-1 CIRCUIT BOARD SECTION ≫		
PCB-C	82-157-604-21	Switch-1 circuit board
S3,4	82-304-628-01	Lever switch (EQ, BIAS)
L403,404	87-005-093-01	Micro inductor coil, 4.7mH
≪ JACK-1 CIRCUIT BOARD SECTION ≫		
PCB-D	82-157-605-21	Jack-1 circuit board
J1,2,3,4	82-157-644-01	Pin jack ass'y (LINE IN/REC, LINE OUT/PLAY)
≪ LED-1 CIRCUIT BOARD SECTION ≫		
PCB-E	82-157-607-21	LED-1 circuit board
D1	87-027-543-01	LED, LN317GP (DOLBY-NR)
≪ LOGIC CIRCUIT BOARD SECTION ≫		
⚠ PCB-F	82-157-612-31	Logic circuit board
IC1	87-027-477-01	IC, TC-9121P
IC3	87-027-595-01	IC, TC-4023BP
IC4	87-027-435-01	IC, TC-4069BP
Q1,2,3,4,5 8,13,27	89-309-455-61	Transistor, 2SC945L(PQ)
Q6,15	89-313-833-41	Transistor, 2SC1383(RS)
Q9,14	89-107-335-61	Transistor, 2SA733K(P)
Q11,12	89-318-464-51	Transistor, 2SC1846(RS)
Q22,23	89-313-834-01	Transistor, 2SC1383(R)
Q24,25	89-106-834-51	Transistor, 2SA683(RS)
Q16,26	89-407-624-51	Transistor, 2SD762(OP)
D1,2,3,4,5, 6,7,8,9,10, 11,13,18,19, 20,21,22	87-027-097-01	Diode, 1S1555
D12,14,15	87-027-365-01	Diode, S5277B
D16	87-027-475-01	Zener diode, HZ6B1
D17	87-027-509-01	Zener diode, HZ12B3
D23	87-027-479-01	Zener diode, HZ27-2
⚠ CP1	87-028-036-01	Compound capacitor, 0.033μF+120Ω
⚠ S8	87-031-589-01	Push-switch (POWER) (H model only)
⚠ S8	87-031-547-01	Push-switch (POWER) (U model only)
SFR1	87-021-480-01	Semi-fixed resistor, 50kΩ-B
PIN-4	87-032-987-01	Pin, 4P
PIN-3	82-481-697-01	Pin, 5P
		< Resistors >
⚠ R77	87-029-066-01	1.5Ω ½w Fuse resistor
⚠ R181	87-029-066-01	1.5Ω ½w Fuse resistor (U model only)
⚠ R23	87-029-017-01	10Ω ¼w Fuse resistor
		< Capacitors >
C17,19	87-015-533-01	220μF 35V Electrolytic LL
C22	87-015-382-01	0.1μF 16V Tantalum
≪ PLUNGER CIRCUIT BOARD SECTION ≫		
PCB-G	82-157-613-21	Plunger circuit board
Q17,21	89-309-455-61	Transistor, 2SC945L(PQ)
Q18	89-108-854-51	Transistor, 2SA885(RS)
Q19,20	89-318-464-51	Tansistor, 2SC1846(RS)
D24,25	87-027-097-01	Diode, 1S1555
D26,27,28	87-027-365-01	Diode, S5277B
≪ SWITCH-2 CIRCUIT BOARD SECTION ≫		
PCB-H	82-157-614-21	Switch-2 circuit board
S7	87-031-502-01	Rotary switch (REPEAT)
≪ JACK-2 CIRCUIT BOARD SECTION ≫		
PCB-I	82-157-617-01	Jack-2 circuit board
J8	87-049-006-01	Jack ass'y 2.5φ (TAPE TIME)
≪ HALL IC CIRCUIT BOARD SECTION ≫		
PCB-J	82-157-616-21	Hall IC circuit board
IC2	87-027-478-01	IC, DN-6835
≪ SUB CIRCUIT BOARD SECTION ≫		
PCB-K	82-157-618-01	Sub circuit board
	87-032-640-01	Pin, 10P
≪ JACK-3 CIRCUIT BOARD SECTION ≫		
PCB-L	82-157-620-11	Jack-3 circuit board
J9	87-032-985-01	DIN socket, 8P (REMOTE)
PIN-5	87-032-995-01	Pin, 7P
≪ LED-2 CIRCUIT BOARD SECTION ≫		
PCB-M	82-157-619-21	LED-2 circuit board
D1	87-027-543-01	LED, LN317GP (POWER)
≪ METER CIRCUIT BOARD SECTION ≫		
PCB-N	82-157-622-01	Meter circuit board
IC701,702	87-027-594-01	IC, IR2E05
Q701,702	89-309-455-61	Transistor, 2SC945L(PQ)
D701,702	88-052-188-11	Diode, 1S188(FM)
SFR701,702	87-021-609-01	Semi-fixed resistor, 1kΩ-B
≪ DOLBY CIRCUIT BOARD SECTION ≫		
	87-033-162-01	Dolby circuit board ass'y w/PCB-O circuit board
≪ LED-3 CIRCUIT BOARD SECTION ≫		
D702,703	87-027-593-01	LED W/PCB-P circuit board
≪ SWITCH-3 CIRCUIT BOARD SECTION ≫		
	82-157-645-01	Push-key ass'y w/PCB-Q circuit board
≪ SWITCH-4 CIRCUIT BOARD SECTION ≫ = H model		
⚠ PCB-R	82-304-733-11	Switch-4 circuit board
⚠ S9	87-031-551-01	Rotary switch (VOLTAGE SELECTOR)
≪ MISCELLANEOUS ≫		
⚠ T1	82-157-632-01	Power transformer (H model only)
⚠ T1	82-157-633-01	Power transformer (U model only)
RPH	87-046-177-01	REC/PB Head
EH	87-046-176-01	Erase head
M1	87-045-135-01	Motor, DC-EG
M2	82-319-617-01	Motor, DC (Sub)
SOL1	82-304-640-11	Solenoid (FR)
SOL2	82-157-623-11	Solenoid
S5	82-319-613-01	Micro switch (REC-INH)
S6	82-304-724-01	Micro switch (CASSETTE)
⚠	87-034-934-01	AC power cord (H model only)
⚠	87-034-935-01	AC power cord (U model only)
	87-033-140-01	Splice conector
⚠	87-085-165-01	Cord bushing
⚠ J11	87-049-009-01	AC outlet (H model only)
CON-2	82-157-673-01	Connector ass'y, 3P
CON-3	82-157-674-01	Connector ass'y, 5P

⚠ This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

Q)
)
(S)
GR)
NR)
kΩ-B
resistor
resistor
resistor
resistor
rolytic
rolytic
rolytic
rolytic
3L)
L)
P)
(S)
PQ)
P)
MIC)
REC LEVEL)
)kΩ-B
resistor
trolytic LL
trolytic LL
trolytic LL

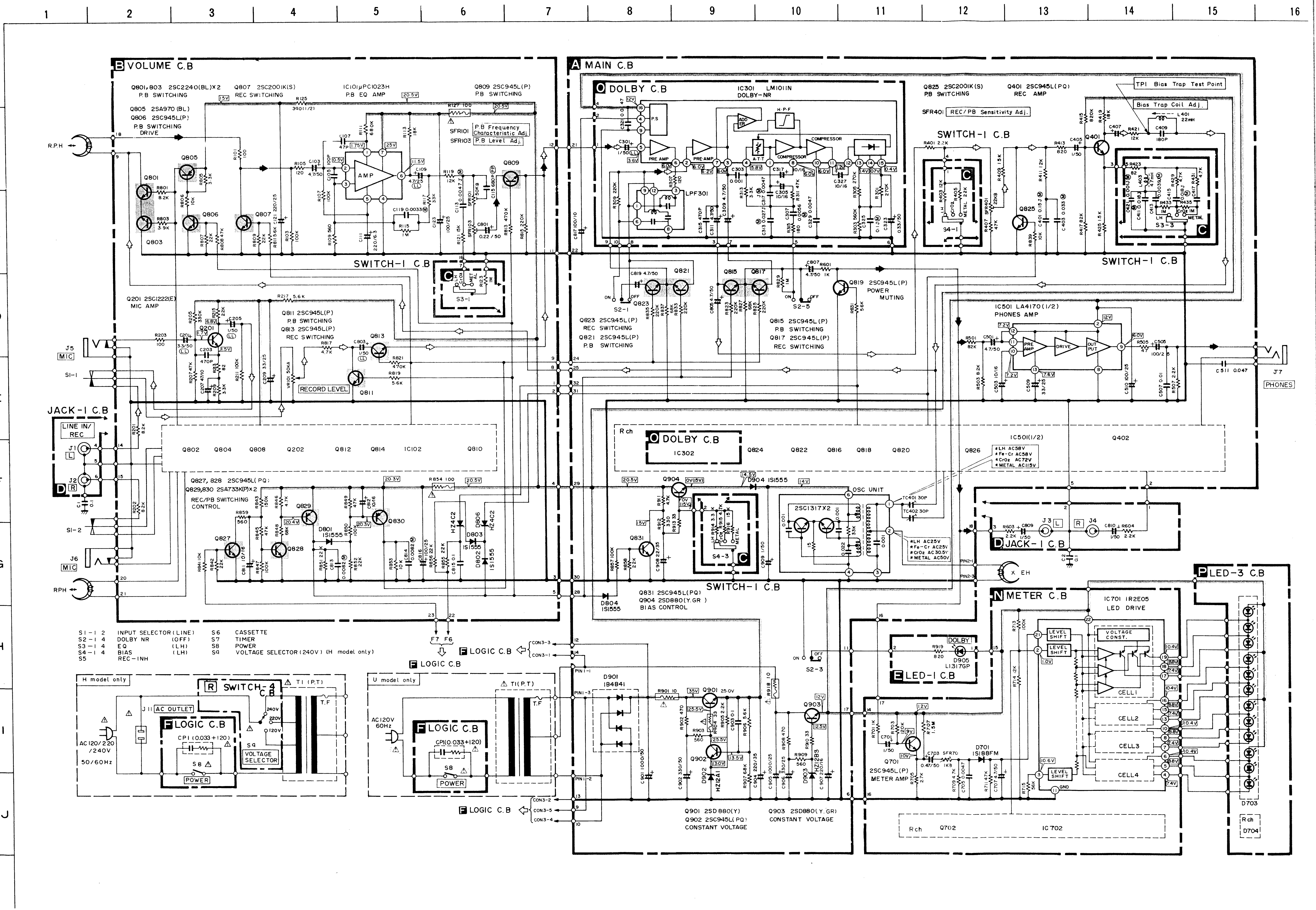
Symbol No.	Part No.	Description
C115,116	87-014-053-01	680pF PP
≪SWITCH-1 CIRCUIT BOARD SECTION≫		
PCB-C	82-157-604-21	Switch-1 circuit board
S3,4	82-304-628-01	Lever switch (EQ, BIAS)
L403,404	87-005-093-01	Micro inductor coil, 4.7mH
≪JACK-1 CIRCUIT BOARD SECTION≫		
PCB-D	82-157-605-21	Jack-1 circuit board
J1,2,3,4	82-157-644-01	Pin jack ass'y (LINE IN/REC, LINE OUT/PLAY)
≪LED-1 CIRCUIT BOARD SECTION≫		
PCB-E	82-157-607-21	LED-1 circuit board
D1	87-027-543-01	LED, LN317GP (DOLBY-NR)
≪LOGIC CIRCUIT BOARD SECTION≫		
⚠ PCB-F	82-157-612-31	Logic circuit board
IC1	87-027-477-01	IC, TC-9121P
IC3	87-027-595-01	IC, TC-4023BP
IC4	87-027-435-01	IC, TC-4069BP
Q1,2,3,4,5 8,13,27	89-309-455-61	Transistor, 2SC945L(PQ)
Q6,15	89-313-833-41	Transistor, 2SC1383(RS)
Q9,14	89-107-335-61	Transistor, 2SA733K(P)
Q11,12	89-318-464-51	Transistor, 2SC1846(RS)
Q22,23	89-313-834-01	Transistor, 2SC1383(R)
Q24,25	89-106-834-51	Transistor, 2SA683(RS)
Q16,26	89-407-624-51	Transistor, 2SD762(OP)
D1,2,3,4,5, 6,7,8,9,10, 11,13,18,19, 20,21,22	87-027-097-01	Diode, 1S1555
D12,14,15	87-027-365-01	Diode, S5277B
D16	87-027-475-01	Zener diode, HZ6B1
D17	87-027-509-01	Zener diode, HZ12B3
D23	87-027-479-01	Zener diode, HZ27-2
⚠ CP1	87-028-036-01	Compound capacitor, 0.033μF+120Ω
⚠ S8	87-031-589-01	Push-switch (POWER) (H model only)
⚠ S8	87-031-547-01	Push-switch (POWER) (U model only)
SFR1	87-021-480-01	Semi-fixed resistor, 50kΩ-B
PIN-4	87-032-987-01	Pin, 4P
PIN-3	82-481-697-01	Pin, 5P
		< **Resistors** >
⚠ R77	87-029-066-01	1.5Ω ½w Fuse resistor
⚠ R181	87-029-066-01	1.5Ω ½w Fuse resistor (U model only)
⚠ R23	87-029-017-01	10Ω ¼w Fuse resistor
		< **Capacitors** >
C17,19	87-015-533-01	220μF 35V Electrolytic LL
C22	87-015-382-01	0.1μF 16V Tantalum
≪PLUNGER CIRCUIT BOARD SECTION≫		
PCB-G	82-157-613-21	Plunger circuit board
Q17,21	89-309-455-61	Transistor, 2SC945L(PQ)
Q18	89-108-854-51	Transistor, 2SA885(RS)
Q19,20	89-318-464-51	Tansistor, 2SC1846(RS)
D24,25	87-027-097-01	Diode, 1S1555
D26,27,28	87-027-365-01	Diode, S5277B

Symbol No.	Part No.	Description
≪SWITCH-2 CIRCUIT BOARD SECTION≫		
PCB-H	82-157-614-21	Switch-2 circuit board
S7	87-031-502-01	Rotary switch (REPEAT)
≪JACK-2 CIRCUIT BOARD SECTION≫		
PCB-I	82-157-617-01	Jack-2 circuit board
J8	87-049-006-01	Jack ass'y 2.5ϕ (TAPE TIME)
≪HALL IC CIRCUIT BOARD SECTION≫		
PCB-J	82-157-616-21	Hall IC circuit board
IC2	87-027-478-01	IC, DN-6835
≪SUB CIRCUIT BOARD SECTION≫		
PCB-K	82-157-618-01	Sub circuit board
	87-032-640-01	Pin, 10P
≪JACK-3 CIRCUIT BOARD SECTION≫		
PCB-L	82-157-620-11	Jack-3 circuit board
J9	87-032-985-01	DIN socket, 8P (REMOTE)
PIN-5	87-032-995-01	Pin, 7P
≪LED-2 CIRCUIT BOARD SECTION≫		
PCB-M	82-157-619-21	LED-2 circuit board
D1	87-027-543-01	LED, LN317GP (POWER)
≪METER CIRCUIT BOARD SECTION≫		
PCB-N	82-157-622-01	Meter circuit board
IC701,702	87-027-594-01	IC, IR2E05
Q701,702	89-309-455-61	Transistor, 2SC945L(PQ)
D701,702	88-052-188-11	Diode, 1S188(FM)
SFR701,702	87-021-609-01	Semi-fixed resistor, 1kΩ-B
≪DOLBY CIRCUIT BOARD SECTION≫		
	87-033-162-01	Dolby circuit board ass'y w/PCB-O circuit board
≪LED-3 CIRCUIT BOARD SECTION≫		
D702,703	87-027-593-01	LED W/PCB-P circuit board
≪SWITCH-3 CIRCUIT BOARD SECTION≫		
	82-157-645-01	Push-key ass'y w/PCB-Q circuit board
≪SWITCH-4 CIRCUIT BOARD SECTION≫ = H model		
⚠ PCB-R	82-304-733-11	Switch-4 circuit board
⚠ S9	87-031-551-01	Rotary switch (VOLTAGE SELECTOR)
≪MISCELLANEOUS≫		
⚠ T1	82-157-632-01	Power transformer (H model only)
⚠ T1	82-157-633-01	Power transformer (U model only)
RPH	87-046-177-01	REC/PB Head
EH	87-046-176-01	Erase head
M1	87-045-135-01	Motor, DC-EG
M2	82-319-617-01	Motor, DC (Sub)
SOL1	82-304-640-11	Solenoid (FR)
SOL2	82-157-623-11	Solenoid
S5	82-319-613-01	Micro switch (REC-INH)
S6	82-304-724-01	Micro switch (CASSETTE)
⚠	87-034-934-01	AC power cord (H model only)
⚠	87-034-935-01	AC power cord (U model only)
	87-033-140-01	Splice conector
⚠	87-085-165-01	Cord bushing

Symbol No.	Part No.	Description
⚠ J11	87-049-009-01	AC outlet (H model only)
CON-2	82-157-673-01	Connector ass'y, 3P
CON-3	82-157-674-01	Connector ass'y, 5P

⚠ This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

SCHEMATIC DIAGRAM–1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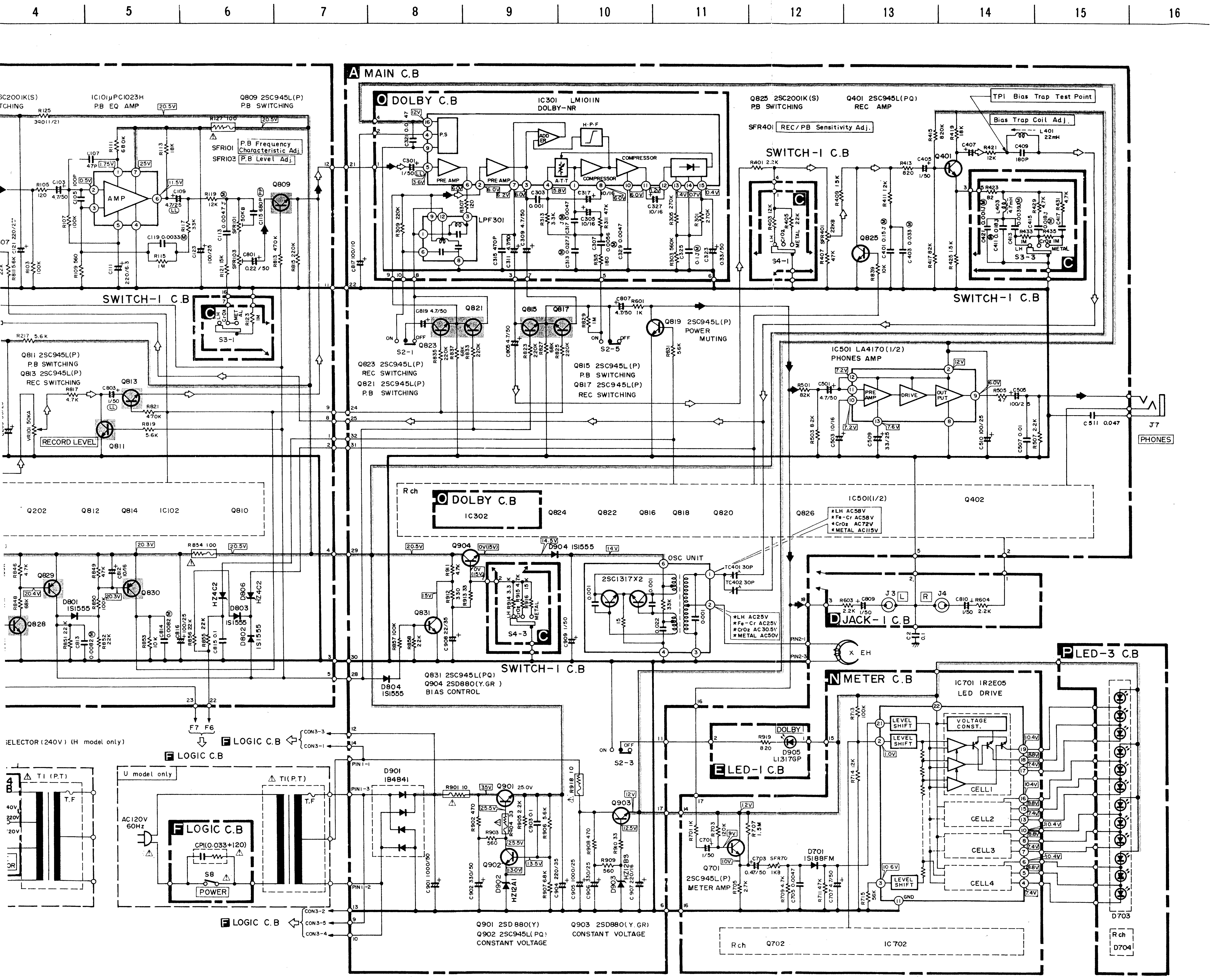
J
B VOLUME C.B
Q801, 803 2SC2240(BL)×2 P.B SWITCHING
Q805 2SA970(BL)
Q806 2SC945L(P) P.B SWITCHING DRIVE
Q807 2SC2001K(S) REC SWITCHING
IC101 μPC1023H P.B EQ AMP
Q809 2SC945L(P) P.B SWITCHING
SFR101 P.B Frequency Characteristic Adj.
SFR103 P.B Level Adj.
SWITCH-1 C.B
C
S3-1
Q201 2SC1222(E) MIC AMP
Q811 2SC945L(P) P.B SWITCHING
Q813 2SC945L(P) REC SWITCHING
RECORD LEVEL
J5 MIC
SI-1
JACK-1 C.B
LINE IN/ REC
J1 L
J2 R
D
SI-2
J6 MIC
RPH
R.P.H
Q802 Q804 Q808 Q202 Q812 Q814 IC102 Q810
Q827, 828 2SC945L(PQ)
Q829, 830 2SA733K(P)×2
REC/PB SWITCHING CONTROL
A MAIN C.B
O DOLBY C.B
IC301 LM1011N DOLBY-NR
PRE AMP
H.P.F
ATT
COMPRESSOR
LPF301
Q825 2SC2001K(S) P.B SWITCHING
Q401 2SC945L(PQ) REC AMP
SFR401 REC/PB Sensitivity Adj.
TP1 Bias Trap Test Point
Bias Trap Coil Adj.
L401 22mH
SWITCH-1 C.B
S4-1
S3-3
Q823 2SC945L(P) REC SWITCHING
Q821 2SC945L(P) P.B SWITCHING
S2-1
Q815 2SC945L(P) P.B SWITCHING
Q817 2SC945L(P) REC SWITCHING
S2-5
Q819 2SC945L(P) POWER MUTING
IC501 LA4170(1/2) PHONES AMP
PRE AMP
DRIVE
OUT PUT
J7 PHONES
R ch
DOLBY C.B IC302
Q824 Q822 Q816 Q818 Q820 Q826 IC501(1/2) Q402
*LH AC58V
*Fe-Cr AC58V
*CrO2 AC72V
*METAL AC115V
Q904
D904 1S1555
OSC UNIT
2SC1317×2
*LH AC25V
*Fe-Cr AC25V
*CrO2 AC30.5V
*METAL AC50V
S4-3
Q831
SWITCH-1 C.B
Q831 2SC945L(PQ)
Q904 2SD880(Y.GR)
BIAS CONTROL
D804 1S1555
JACK-1 C.B
J3 L
J4 R
EH
F7 F6
F LOGIC C.B
F LOGIC C.B
F LOGIC C.B
S2-3
DOLBY
D905 LI317GP
E LED-1 C.B
D901 1B4B41
Q901 2SD880(Y)
Q902 2SC945L(PQ)
CONSTANT VOLTAGE
Q903 2SD880(Y.GR) CONSTANT VOLTAGE
D902 HZ12A1
D903 HZ12B3
N METER C.B
IC701 IR2E05 LED DRIVE
LEVEL SHIFT
VOLTAGE CONST.
CELL1
CELL2
CELL3
CELL4
Q701 2SC945L(P) METER AMP
D701 1S188FM
SFR701
Rch Q702 IC702
P LED-3 C.B
D703
Rch D704
H model only
R SWITCH-4 C.B
T1 (P.T)
T.F
J11 AC OUTLET
F LOGIC C.B
CP1 (0.033+120)
S8
POWER
S9
VOLTAGE SELECTOR
240V
220V
120V
AC120/220/240V 50/60Hz
U model only
AC120V 60Hz
F LOGIC C.B
CP1 (0.033+120)
S8
POWER
T1 (P.T)
T.F

S1-1 2	INPUT SELECTOR	(LINE)
S2-1 4	DOLBY NR	(OFF)
S3-1 4	EQ	(LH)
S4-1 4	BIAS	(LH)
S5	REC-INH	
S6	CASSETTE	
S7	TIMER	
S8	POWER	
S9	VOLTAGE SELECTOR (240V) (H model only)	


4
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16
A MAIN C.B
O DOLBY C.B
IC301 LM1011N DOLBY-NR
IC101 μPC1023H P.B EQ AMP
Q809 2SC945L(P) P.B SWITCHING
SFR101 P.B Frequency Characteristic Adj.
SFR103 P.B Level Adj.
Q825 2SC2001K(S) P.B SWITCHING
Q401 2SC945L(PQ) REC AMP
SFR401 REC/PB Sensitivity Adj.
TP1 Bias Trap Test Point
Bias Trap Coil Adj.
SWITCH-1 C.B
PRE AMP
ADD ER
H-P-F
A-T-T
COMPRESSOR
LPF301
P.S
AMP
S3-1
S4-1
S3-3
S4-3
S2-1
S2-5
S2-3
Q819 2SC945L(P) POWER MUTING
Q811 2SC945L(P) P.B SWITCHING
Q813 2SC945L(P) REC SWITCHING
RECORD LEVEL
Q823 2SC945L(P) REC SWITCHING
Q821 2SC945L(P) P.B SWITCHING
Q815 2SC945L(P) P.B SWITCHING
Q817 2SC945L(P) REC SWITCHING
IC501 LA4170(1/2) PHONES AMP
DRIVE
OUT PUT
J7 PHONES
Rch
IC302
IC501(1/2)
Q402
Q202 Q812 Q814 IC102 Q810
Q824 Q822 Q816 Q818 Q820 Q826
*LH AC58V *Fe-Cr AC58V *CrO2 AC72V *METAL AC115V
OSC UNIT
2SC1317X2
*LH AC25V *Fe-Cr AC25V *CrO2 AC30.5V *METAL AC50V
D904 1S1555
Q831 2SC945L(PQ)
Q904 2SD880(Y.GR) BIAS CONTROL
D804 1S1555
D JACK-1 C.B
EH
F7 F6
F LOGIC C.B
SELECTOR (240V) (H model only)
U model only
T1 (P.T)
T.F
AC120V 60Hz
F LOGIC C.B
CP1(0.033+120)
S8
POWER
D901 1B4B41
Q901 2SD880(Y)
Q902 2SC945L(PQ) CONSTANT VOLTAGE
Q903 2SD880(Y.GR) CONSTANT VOLTAGE
D902 HZ12A1
D903 HZ12B3
E LED-1 C.B
DOLBY
D905 LI317GP
N METER C.B
IC701 IR2E05 LED DRIVE
LEVEL SHIFT
VOLTAGE CONST.
CELL1
CELL2
CELL3
CELL4
GND
Q701 2SC945L(P) METER AMP
D701 1S188FM
Rch Q702 IC702
P LED-3 C.B
D703
Rch D704

NOTES:

1) ▇ B (+) power supply

2) ➡ Signal path

⇨ Rec path

3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. But ( ) is with recording. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

4) Resistors with no designation have a rated power of ¼W and a tolerance of ±5%.

5) Capacitors with no designation have a dielectric strength of less than 50WV.

6) The only capacitor tolerances indicated are ±5% (J) and ±10% (K).

7) Ceramic capacitor symbols:

For temperature compensation (SL)

High dielectric constant system (YY)

High dielectric constant system (YW, YP, YZ)

8) Explanation of symbols

Ⓜ Mylar capacitor

(PP) Polypropylene film capacitor

(LL) Low-leakage capacitor

(T) Tantalum capacitor

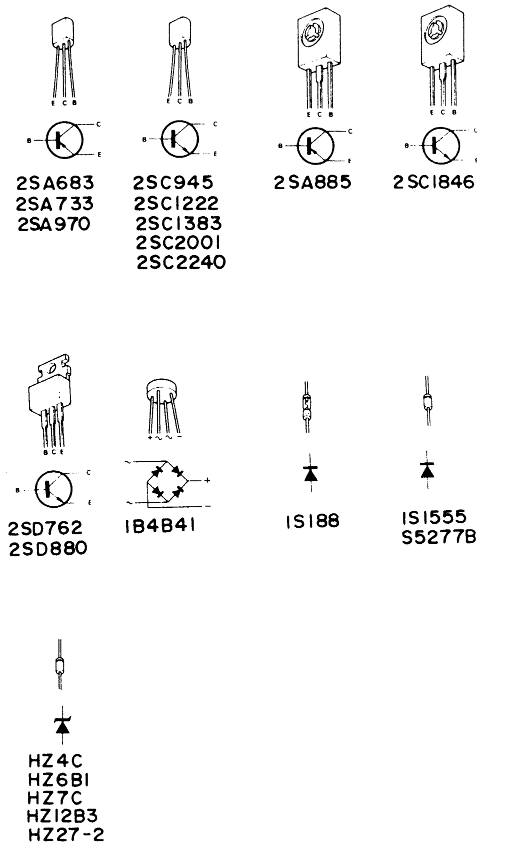
Fuse resistor

9) REC／PB Transistor swith

⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.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2SA733
2SA970
2SC945
2SC1222
2SC1383
2SC2001
2SC2240
2SA885
2SC1846
2SD762
2SD880
1B4B41
1S188
1S1555
S5277B
HZ4C
HZ6B1
HZ7C
HZ12B3
HZ27-2